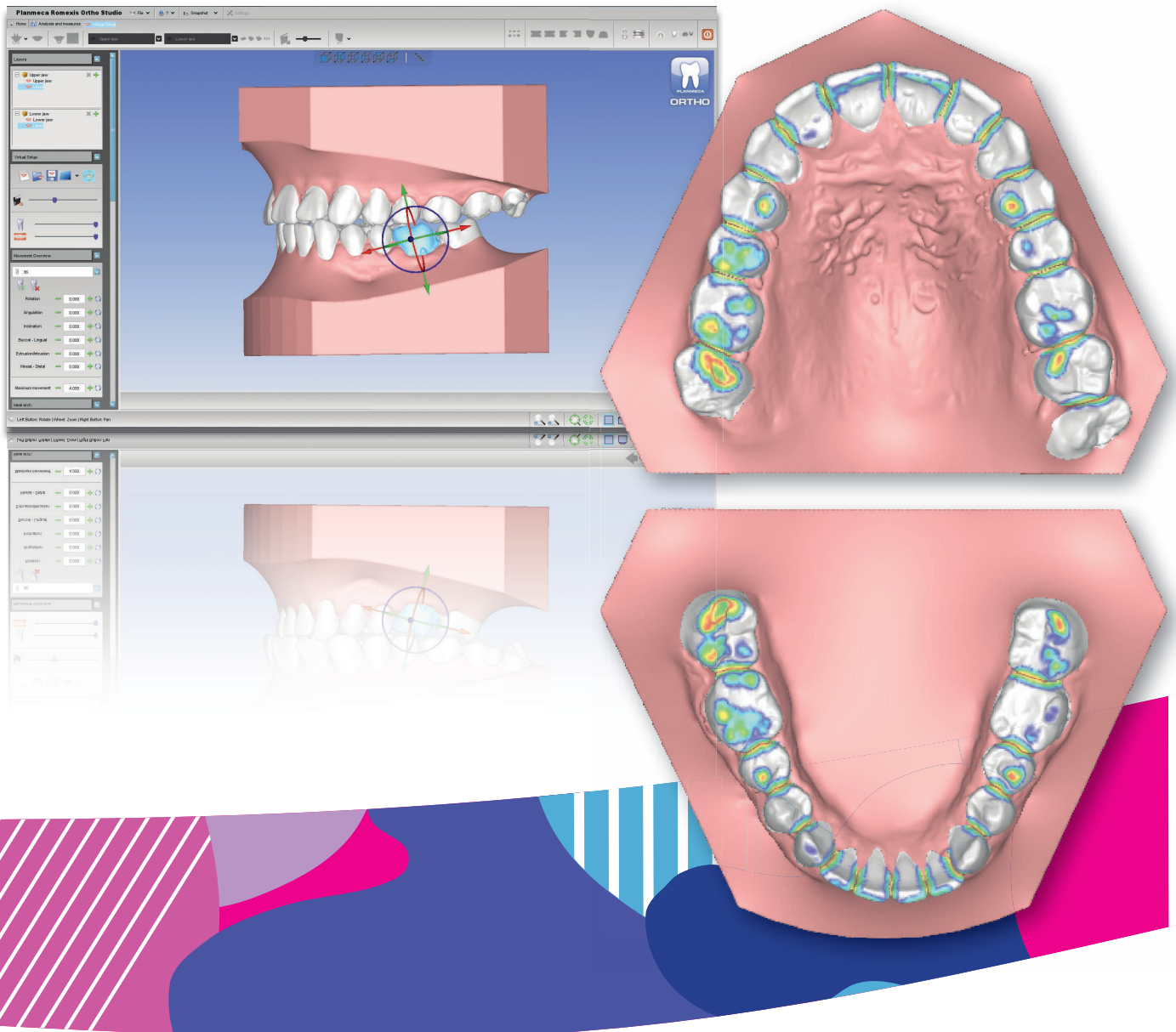




Planmeca Romexis® 3D Ortho Studio EN

user's manual

1	INTRODUCTION	1
2	STARTING A NEW CASE FROM PLANMECA ROMEXIS	2
3	CONTINUING WITH AN EXISTING CASE IN PLANMECA ROMEXIS 3D ORTHOSTUDIO	7
4	USER INTERFACE	8
4.1	Visualization area	8
4.2	Main toolbar	9
4.3	View toolbar	10
5	ADDING AND EDITING DATA ENTRIES	13
5.1	Adding new entries	13
5.2	Assigning doctors with clinics	14
5.3	Assigning patients with doctors	14
5.4	Editing clinic, doctor and patient data	15
6	IMPORTING CASES	16
7	PREPARING AND ADJUSTING DENTAL MODELS	17
7.1	Adjusting the orientation of the models	17
7.2	Adjusting teeth articulation	18
7.3	Smoothing and sculpting the models	19
7.4	Adding virtual base	20
7.5	Removing extra surface material from the models using cut and close	23
8	DENTAL MODEL ANALYSIS	24
8.1	Occlusion visualization	24
8.2	Cross section analysis	25
8.3	Teeth measurements	26
8.4	Measuring arch length	28
8.5	Free measurements	29
9	TREATMENT PLANNING IN 3D VIRTUAL SETUP	30
9.1	Tooth segmentation	30
9.2	Virtual setup	33
9.3	Creating a series of digital dental models using models builder	42
10	GENERAL MENUS	45
10.1	File menu	45
10.2	Help menu	45
10.3	Snapshot menu	45
10.4	Settings menu	46

The manufacturer, assembler, and importer are responsible for the safety, reliability and performance of the unit only if:

- installation, calibration, modification and repairs are carried out by qualified authorized personnel
- electrical installations are carried out according to the appropriate requirements such as IEC 60364
- equipment is used according to the operating instructions.

Planmeca pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

COPYRIGHT PLANMECA

Publication number 10033024 Revision 1

Released 14 June 2013

1 INTRODUCTION

The Planmeca Romexis 3D Ortho Studio is a software module designed for orthodontists and dental laboratories. It can be used for preparation of digital dental models, making dental model analyses, treatment planning in 3D virtual setup, and export of digital dental models in STL format.

This manual describes how to use the Planmeca Romexis 3D Ortho Studio software.

NOTE Read this manual carefully before using the system.

NOTE This manual is valid for the following software revisions:
Planmeca Romexis 3.2.R.

NOTE Planmeca Romexis 3D Ortho Studio can be used with Microsoft Windows 8, 7, XP, Vista Business, Windows 2003 and Windows 2008 Server operating systems. Planmeca Romexis conforms to Windows user interface standards.

NOTE User organization must take care of protecting the computer and the network by using up-to-date virus and malware protection software and fire wall.

NOTE If necessary save the following for backup of ortho studio data:
C:\Program Files\PlanmecaRomexis\client\orthostudio

NOTE In order to use the software Planmeca Romexis 3D Ortho Studio USB license dongle has to be inserted into the client computer USB port.

NOTE The software is created by AGE Solutions S.r.l.

2 STARTING A NEW CASE FROM PLANMECA ROMEXIS



The following procedure describes how to align digital dental models captured with Planmeca Promax 3D model scanning program and transfer the models in occlusion to Planmeca Romexis 3D Ortho Studio as a new case.

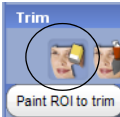
1. Take an exposure of both the mandibular and maxillary models using the Planmeca Promax 3D model scanning scan program selecting **Model capture** from Planmeca Romexis.

NOTE For full details on how to use the Planmeca Promax 3D model scanning program refer to your Planmeca X-ray unit user's manual.



2. Take an exposure of the bite index using the Planmeca Promax 3D model scanning program of your Planmeca X-ray unit selecting 3D capture from Planmeca Romexis.

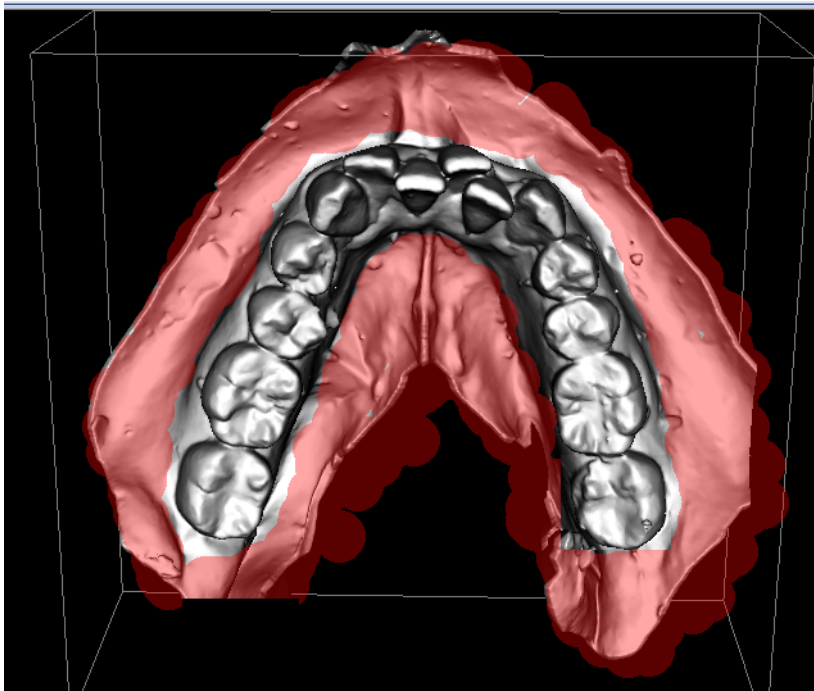
The image of the bite index is in **DICOM** format and the mandibular and maxillary models are in **STL** format.



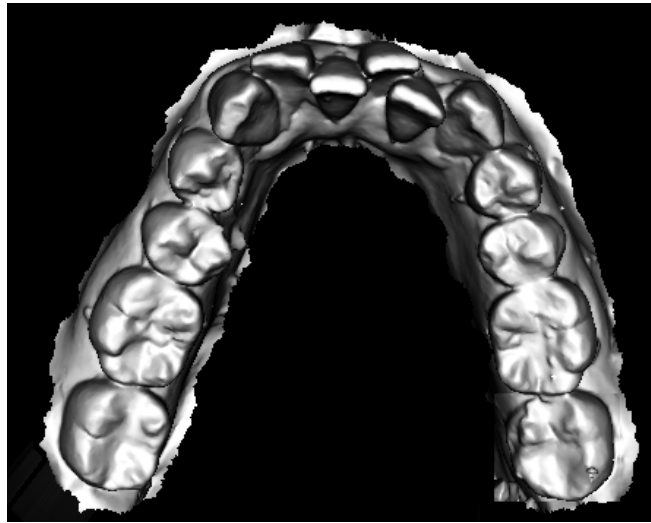
3. Open the upper model from the Planmeca Romexis *Volumes* list.

The model opens in Romexis ProFace/Surface module

4. Select the **Paint ROI to trim** tool.
5. Mark the area to trim on the image.



When the trimming is completed the marked area will be automatically removed from the image.

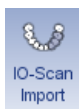


6. Repeat the procedure for the lower model from steps 3 to 5.

7. Open the image of the bite index from the *Volumes* tab.

Volumes

Exposure Date	Image size	Voxel Size (µm)	Serial Number	kV	mA	s	DAP(mGy*cm²)	Comments	Preview
23.4.2013 14:54	400 × 400 × 400	200	TFM770101	80	14	22.828		E - bite index Aquasil 23.4.2013	
13.5.2013 15:16	179901 × 3	0							
13.5.2013 15:16	179957 × 3	0							



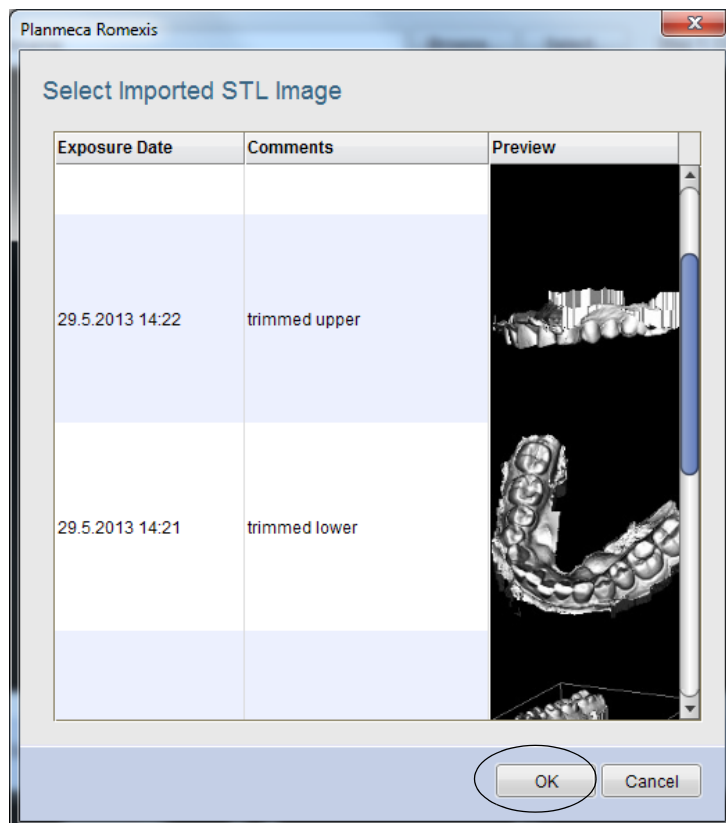
8. Click **IO-Scan import** button.

9. Open the digital impressions one by one by clicking the **Select** button.

Import STL

Open a STL file for import. Choose three corresponding points (by right clicking) from the STL

10. Select first the UPPER model and click **OK**.

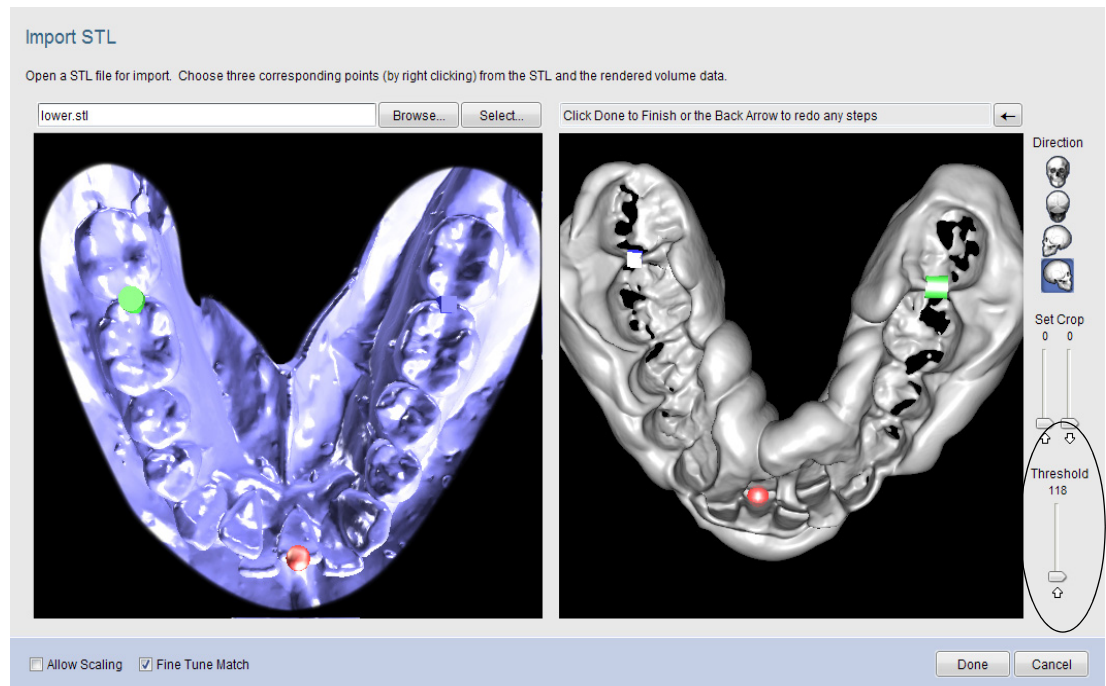


11. Lower the threshold value as much as possible (down to 100) to better visualize the bite index surface.

To zoom in / out the image scroll the mouse wheel.

12. Mark the corresponding points on both the model and the index by right-clicking on the corresponding areas. The points are colour-coded (red, green and blue) so that it is easier to see which point in the index corresponds to which point in the model.

NOTE Make sure that you have selected the correct occlusion side from both the model and the bite index. Note that the model and bite index are each other's mirror images.



13. Click **Done**.

14. Repeat the steps from 8 to 13 selecting the lower model in the Import STL dialogue.



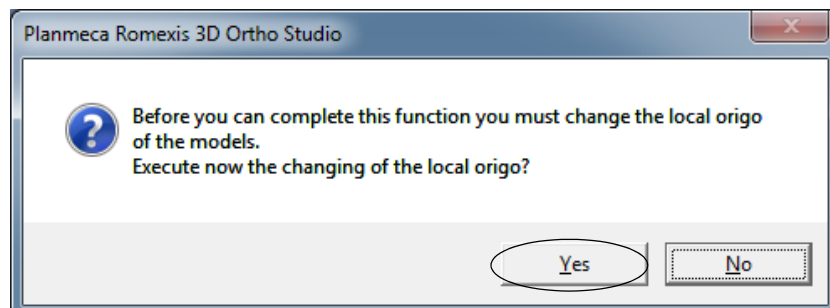
15. Launch the models in Planmeca Romexis 3D Ortho Studio by clicking the **Ortho Studio** icon.

Patient data (patient ID, first and last name, date of birth) is automatically transferred to Planmeca Romexis 3D OrthoStudio as a new case under default clinic and default doctor.

NOTE Close the Planmeca 3D Ortho Studio before starting the transfer.

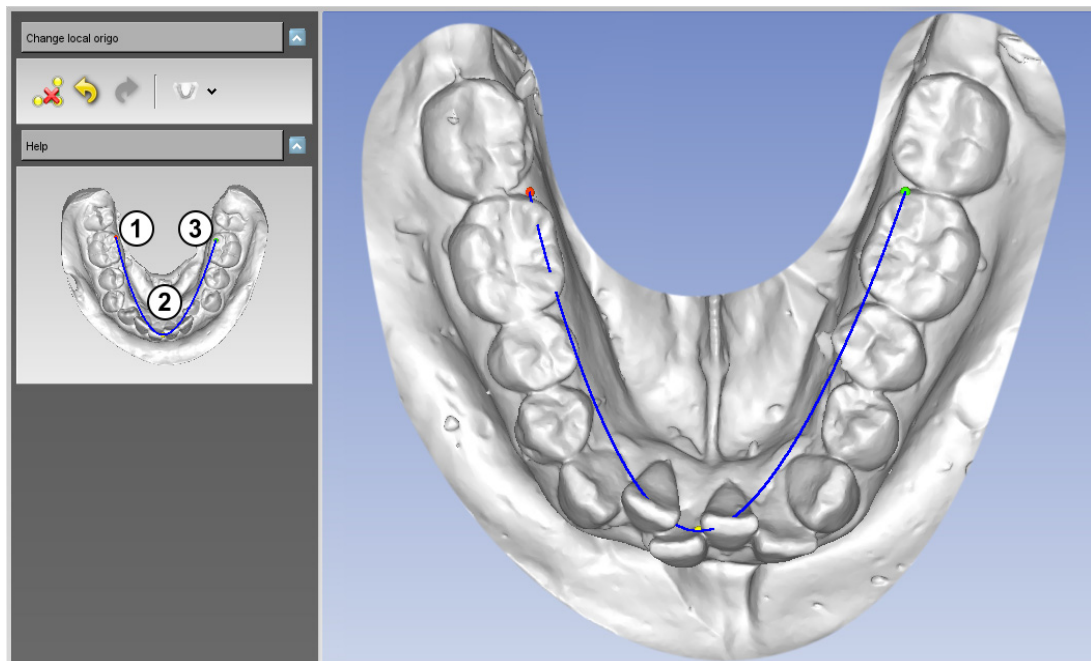
NOTE The models are always transferred to Planmeca Romexis 3D Ortho Studio as new models when the quick launch button is pressed. For continuing a previous case see section "CONTINUING WITH AN EXISTING CASE IN PLANMECA ROMEXIS 3D ORTHOSTUDIO" on page 7.

16. To adjust the orientation of the models click **Yes**.



17. Select either mandibular or maxillary model.

18. Mark the three points on the model.

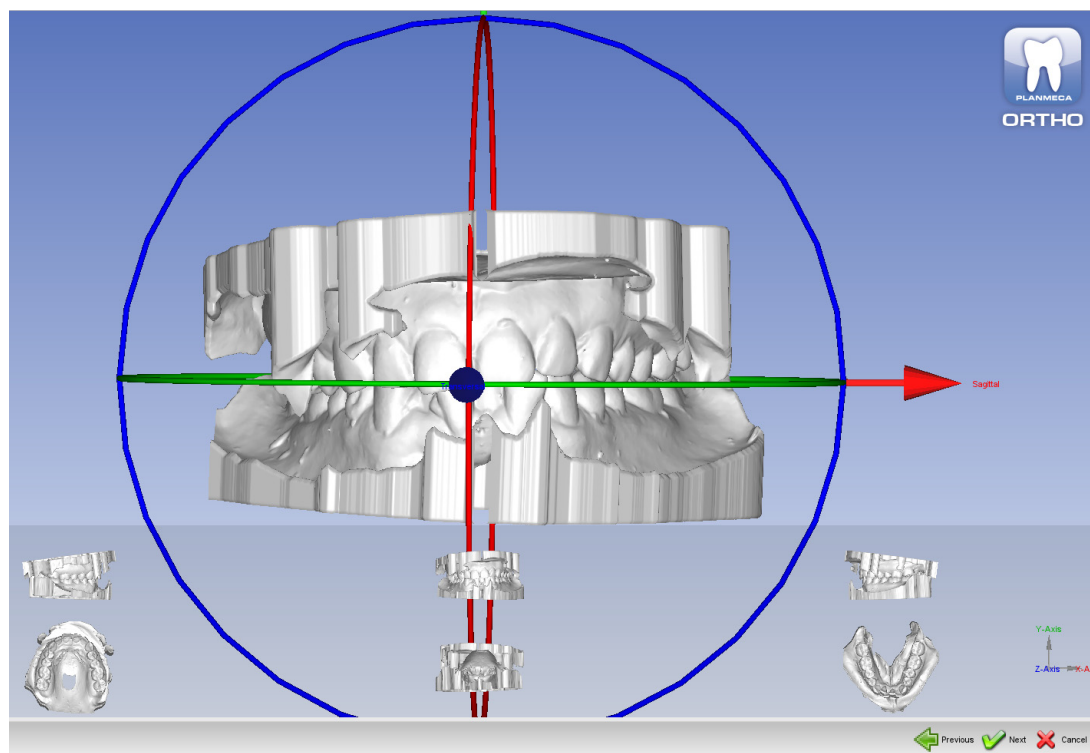


19. Select another model (mandibular or maxillary) and mark the three corresponding points on the model.



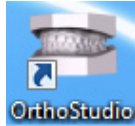
20. Click **Next**.

If necessary fine-tune the orientation of the models and the occlusal plane by moving the coloured arrows.



3 CONTINUING WITH AN EXISTING CASE IN PLANMECA ROMEXIS 3D ORTHOSTUDIO

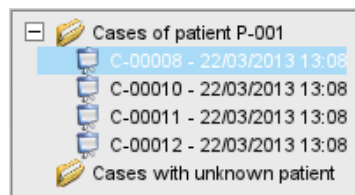
NOTE If the models have been already aligned and transferred to Planmeca 3D Ortho Studio you can start from this section. If you need to align the models and the bite index see section “STARTING A NEW CASE FROM PLANMECA ROMEXIS” on page 2.



1. Click the **OrthoStudio** icon on your desktop.
2. In the following window click the **Open case** icon.



3. Select the existing case from the tree view under default clinic and doctor and the patient in question.



To view all the cases of the selected patient click the **Select patient** icon.

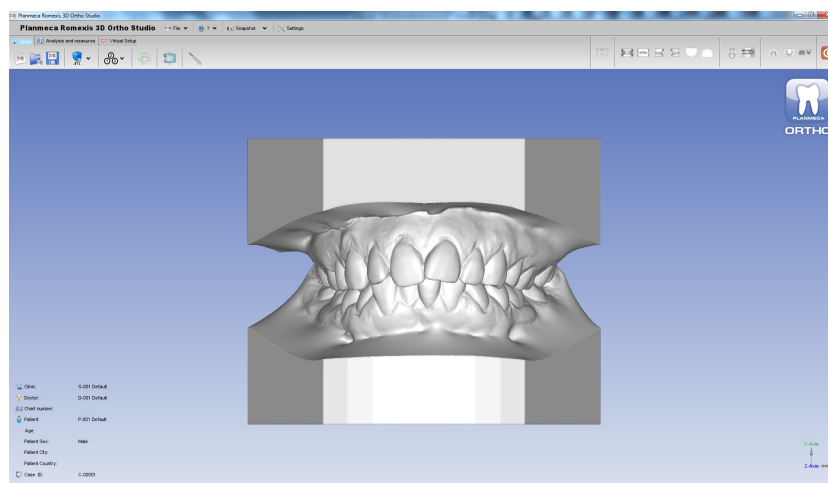
If necessary you can modify the clinic, doctor and patient data and add a new clinic, doctor and patient.

To move a case to another patient click the case in the tree and drag it to the patient folder where you'd like to move the case to.



4. Click **Next**.

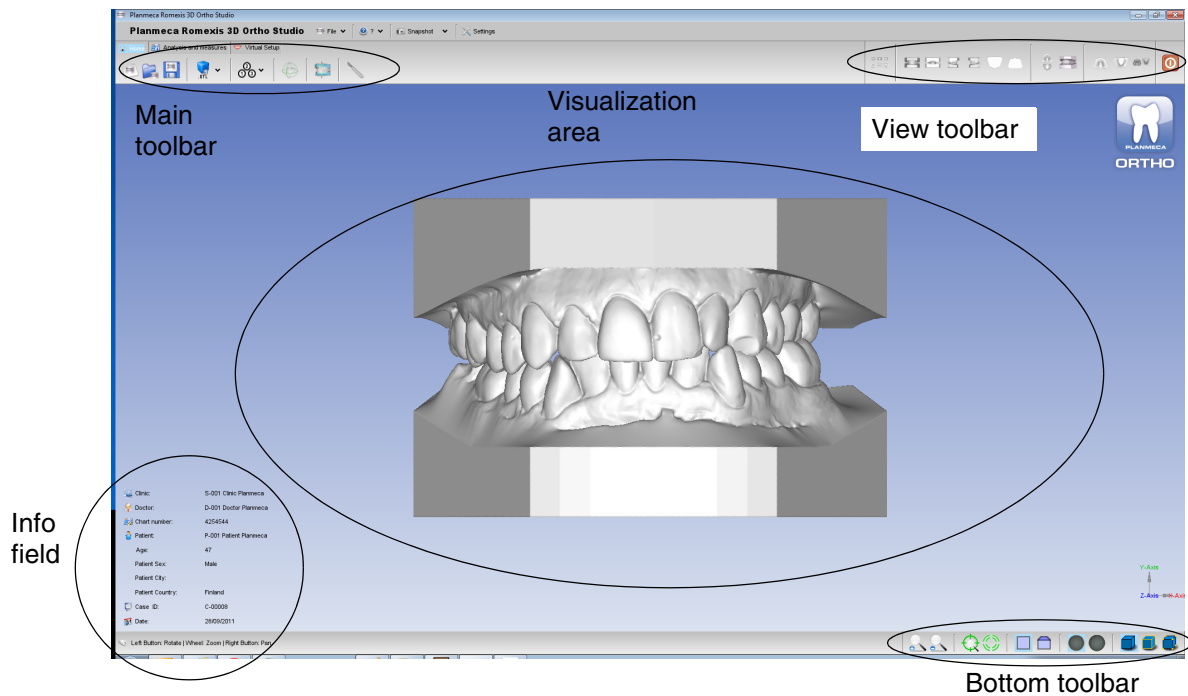
The case opens in the following window.



4 USER INTERFACE

The Planmeca Romexis 3D Ortho Studio user interface consists of the following elements:

- Visualization area
- Main tool bar
- View tool bar (for viewing the object from different directions)
- Bottom tool bar
- Info field



4.1 Visualization area

The images and models are opened and edited in the visualization area

In the visualization area it is possible to create virtual bases, show the occlusion visualization between maxillary and mandibular arches, measure distance between teeth and perform virtual setup.

To view and examine the models displayed in the visualization / editing area you can set camera parameters (position, scale and rotation) using the instrument trackball tool.

To rotate around the model use the left mouse button.

To Zoom in / out scroll the mouse wheel.

To move (pan) the camera use the right mouse button

The info area of the screen shows the info related to the current Case. In particular the info about clinic, Doctor and Patient are displayed, also with the Case ID.

4.2 Main toolbar

4.2.1 Home tab



New case

See sections 6 “IMPORTING CASES” on page 16 and 5 “ADDING AND EDITING DATA ENTRIES” on page 13.



Open (existing) case

See section 3 “CONTINUING WITH AN EXISTING CASE IN PLANMECA ROMEXIS 3D ORTHOSTUDIO” on page 7.



Save case

Click this button to save the case you are currently working on.



Exports

- Stl exports

Exports the case data and the maxillary and mandibular models in *.Stl file format.

- *Ortho export*

Exports the case in *.ortho file format.



Change Local Origo

Use this tool to adjust the orientation of the models, see page 17.



Change Articulation

See section 7.2 “Adjusting teeth articulation” on page 18.



Add Virtual Base

See section 7.4 “Adding virtual base” on page 20.



Sculpting

See section 7.4 “Adding virtual base” on page 20

4.3 View toolbar



Multiple Views



Front view



Rear view



Right side view



Left side view



Top view



Bottom view



Open mouth



Close mouth



Show maxillary/mandibular/all



Show mandibular/all



Show all

Change the view from maxillary to mandibular or to all. Changing the view from all to maxillary or vice versa enables or disables some features of the software.



Exit the software

4.3.1 Analyses and measurements tab



Occlusion visualization

Calculates the distances between maxillary and mandibular arches. See section 8.1 “Occlusion visualization” on page 24.



Cross sections

See section 8.2 “Cross section analysis” on page 25



Teeth measurements

See section 8.3 “Teeth measurements” on page 26



Arch measurements

See section 8.4 “Measuring arch length” on page 28



Free measurements

See section 8.5 “Free measurements” on page 29

4.3.2 Virtual setup tab



Tooth segmentation menu



- Tooth segmentation: draw an outline for each tooth
- Cutting line: separates the tooth from the gum and combines the outlines of separated neighbouring teeth. The maximum distance under which the outlines of the adjacent teeth are automatically combined can be freely defined.



- Change local origo: adjust local origo, axes and root for each tooth.



Virtual setup

See section 9.2 “Virtual setup” on page 33.



Models builder

See section 9.3 “Creating a series of digital dental models using models builder” on page 42.



Cut and close

See section 7.5 “Removing extra surface material from the models using cut and close” on page 23.



Menu list of all virtual models



Show/hide attachments, brackets, brackets key, labels



Animation



Exports



PDF Exports

Exports the treatment plan report in PDF format.



Xls Exports

Exports the treatment plan report in MS Excel format (.xls).

4.3.3 Bottom toolbar

The bottom toolbar contains tool for adjusting the visual settings of the viewing area.



Zoom in



Zoom out



Show/hide trackball



Reset trackball [Key R]



Parallel projection [Key O]



Perspective projection [Key P]



Smooth shading [Key S]



Flat shading [Key F]



Show/hide triangles [Key E]



Show/hide edges [Key E]



Show/hide vertices [Key V]

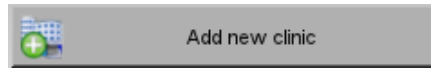
5 ADDING AND EDITING DATA ENTRIES

5.1 Adding new entries



1. Click the **New Case** icon on the main toolbar.

To add a new clinic click this button.



2. Fill in the necessary data.



3. Save the clinic to the database by clicking this icon at the bottom of the screen.

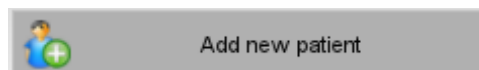


To clear the form click **Clear**.

To add a new doctor click the **Add new doctor** button and fill in the necessary data.



To add a new patient click the **Add new patient** button and fill in the necessary data.



4. Select the clinic from the drop-down menu.

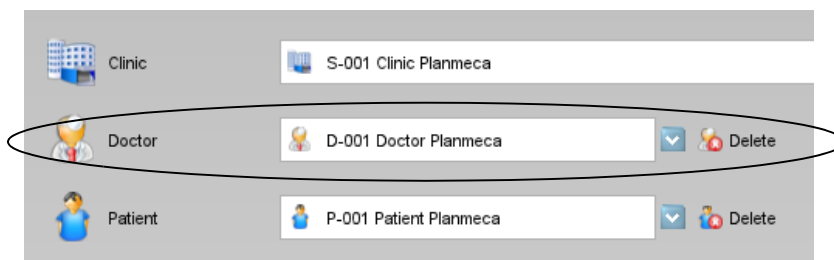
To delete the clinic currently selected click the **Delete** icon.

NOTE Clicking the **Delete** icon removes the selected clinic from the Planmeca Romexis Database.

5.2 Assigning doctors with clinics

To add a new doctor to a clinic select a doctor from the *Other doctors* drop-down menu and click the **Add** icon.

To remove a doctor from the list of Doctors associated with a certain clinic without deleting the doctor from the database clicking the **Delete** button next to *Doctor* drop-down menu.



To delete a doctor from the database select the doctor from the *Other Doctors* menu and click **Delete**.

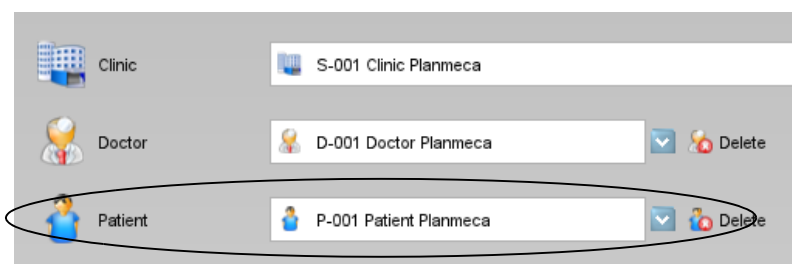
NOTE Clicking the **Delete** icon removes the selected doctor from the Planmeca Romexis 3D Ortho Studio database.



5.3 Assigning patients with doctors

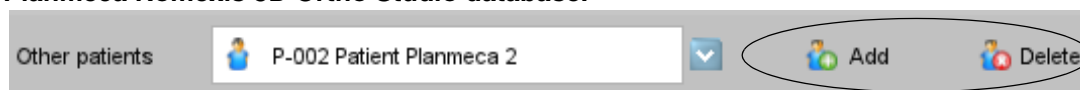
To assign a new patient to the currently selected doctor select the patient from the *Other patients* drop-down menu and click the **Add** button.

To remove a patient associated with a certain doctor without deleting the patient from the database select the patient and click the **Delete** button next to *Patient* drop-down menu.



To remove the patient from the database click the **Delete** button next to the *Other patients* drop-down menu.

NOTE Clicking the **Delete** icon removes the selected patient and all its data from the Planmeca Romexis 3D Ortho Studio database.



5.4 Editing clinic, doctor and patient data

To edit clinic, doctor and patient data click the respective drop-down menu and fill in the necessary data.

Clinic - S-001 Clinic Planmeca	▼
Doctor - D-001 Doctor Planmeca	▼
Patient - P-001 Patient Planmeca	▼
Case	▲



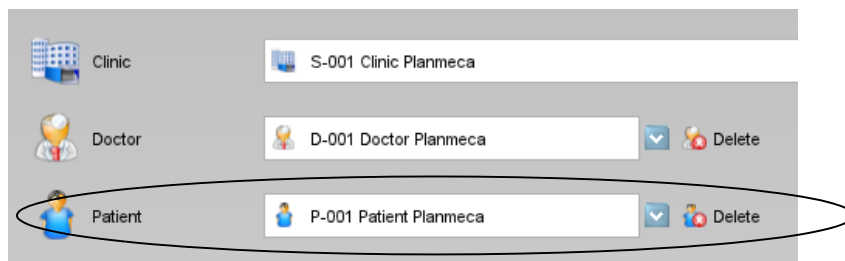
When finished click the **Next** icon to proceed to dental model import for the current patient see section 6 “IMPORTING CASES” on page 16.

6 IMPORTING CASES



1. Click the **New case** button.

- To import a case for an existing patient select the patient from the drop-down menu.



- To import a case for a new patient first add the necessary data entries see section 5.1 “Adding new entries” on page 13.



2. Click **Next**.



3. Import the models from an external folder either in:

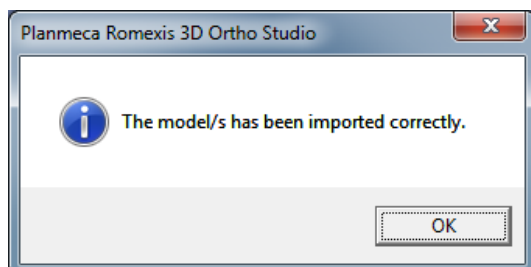
- stl* file format by clicking the **Open files from disk** icon

or in



- ortho* file format: click the **Import** icon.

4. After successful import the following window appears. Click **OK**.



5. To start preparing models continue to section 7 “PREPARING AND ADJUSTING DENTAL MODELS” on page 17.

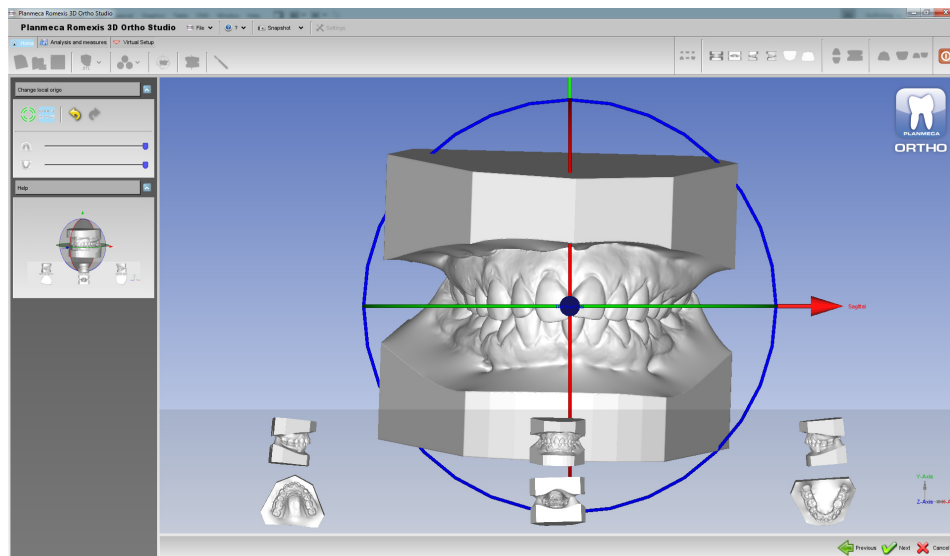
7 PREPARING AND ADJUSTING DENTAL MODELS

7.1 Adjusting the orientation of the models

If necessary you can adjust the orientation of the models as follows.



1. Click this icon.
2. Indicate three points on the model by double-clicking with the left mouse button on the points shown in the help image on the left. Click **Next**.
3. Select the maxillary model and repeat the same step. Click **Next**.
4. Translate and rotate the models by dragging the coloured arrows or circle lines, until the models are correctly orientated.
 - the centre marks the origin of the coordinate system
 - the red arrow marks the X axis
 - the green arrow marks the Y axis
 - blue arrow marks the Z axis



5. To update the local origo click **Next**.



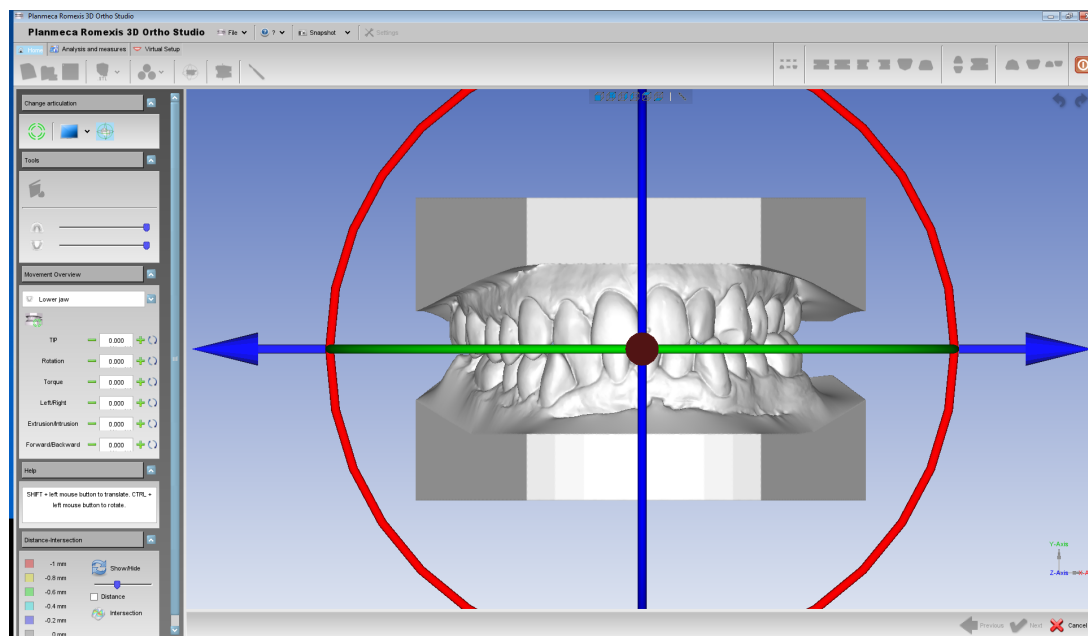
6. Click **Save**.

7.2 Adjusting teeth articulation

If necessary you can adjust the contact relationship of the occlusal surfaces of the teeth during jaw movement.



1. Click this icon.
2. In the following window adjust the articulation by moving the arrows.



- the centre marks the origin of the coordinate system
- the red arrow marks the X axis
- the green arrow marks the Y axis
- blue arrow marks the Z axis



3. To update the articulation click **Next**.



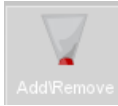
4. Click **Save**.

7.3 Smoothing and sculpting the models

The sculpting and smoothing tools can be used to remove artifacts and excess material from the digital dental models and to smooth the surface of the models.



In order to make some modifications on the models, click the **Sculpting** icon.



Add/remove material

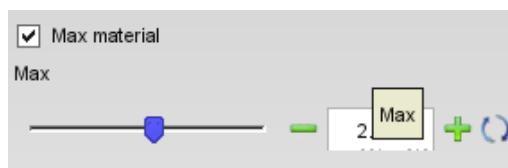
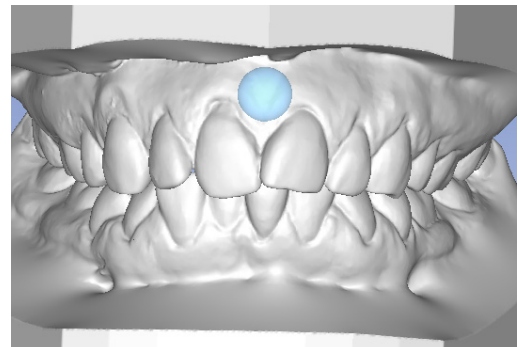
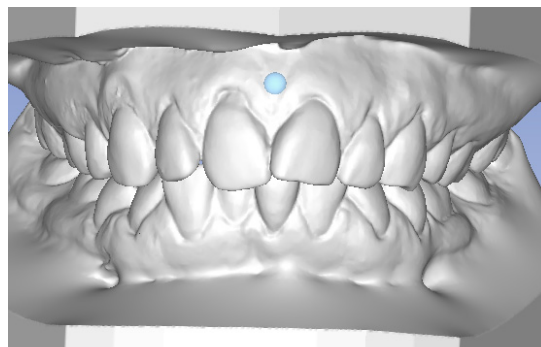
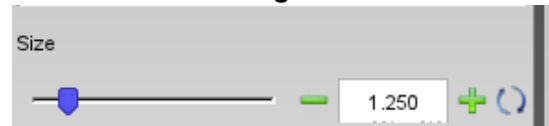
Click this icon to add or remove material from the surface of the models. Adjust the size, amplitude of the brush and Maximum amount of material to be removed.



Smooth surface

Click this icon to smooth the surface of the models. Adjust Size and Amplitude of the brush.

Size of the smoothing tool



Undo/redo

Use these buttons to undo and redo operations.

7.4 Adding virtual base



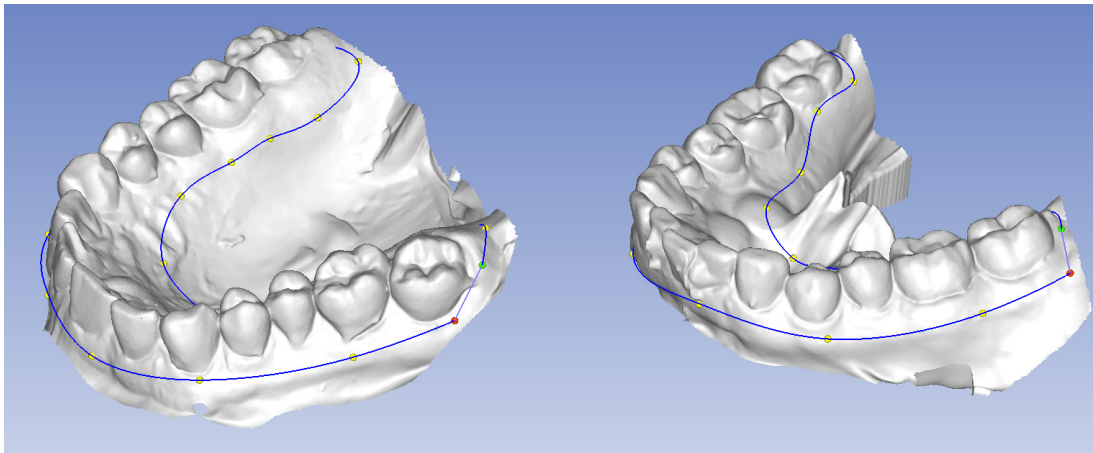
To add the virtual base for maxillary and mandibular models click the **Add virtual base** icon.

7.4.1 Defining the cutting line

The cutting line needs to be defined for the models so that they can be later used as base lines for the virtual bases.

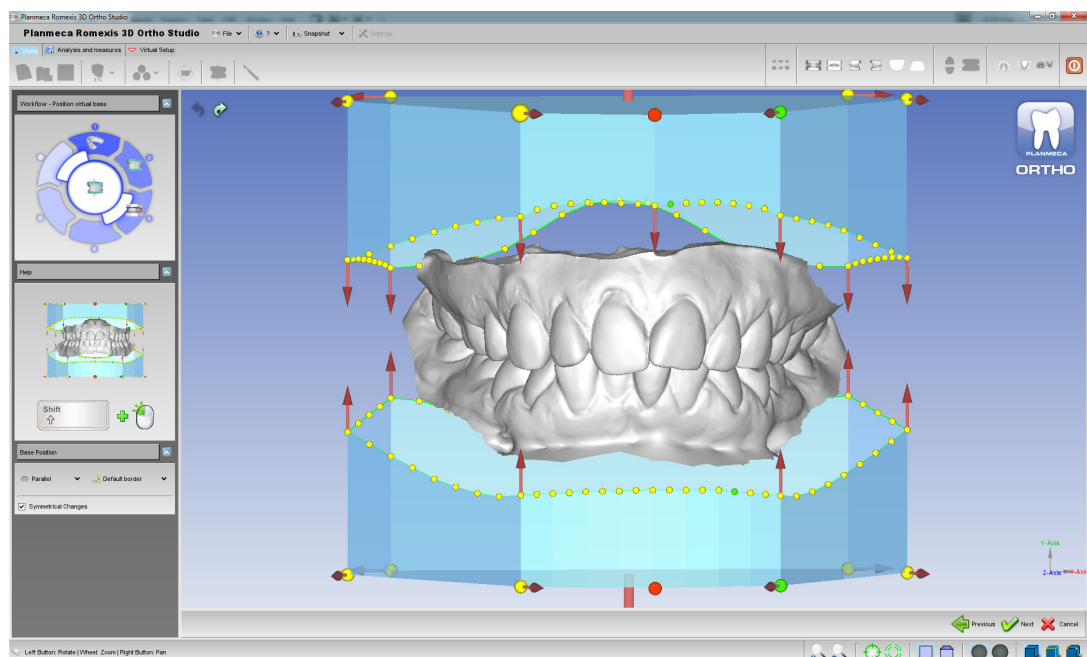
To add control points on the line:

1. Press and hold down the **Shift** key while clicking/double-clicking or dragging with the left mouse button.

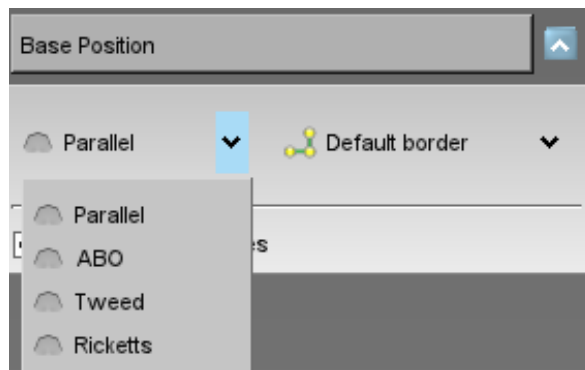


2. When finished click **Next**.

3. In the following window adjust the size and distance of the base in relation to the models by pressing and holding down the **Shift** key while dragging the base from the arrows with the left mouse button.



4. Select the type of the virtual base (Parallel, ABO, Tweed, Ricketts) from the drop-down menu on the lower left corner of the screen.



Changing shape of virtual base border

To change the shape of the virtual base border drag the points at the virtual base border.

To add/remove points use hold down the **Shift** key while double-clicking with the left mouse button.

To draw the base border hold down the **Shift** key and click with the left mouse button dragging near to the base border.

To move the border up and down drag the arrows of the virtual base border.

Changing shape of virtual base

To change the shape (width and length) of the virtual base drag the points and arrows at the corners of virtual base.

During editing constraints between angles/sides of base are preserved.

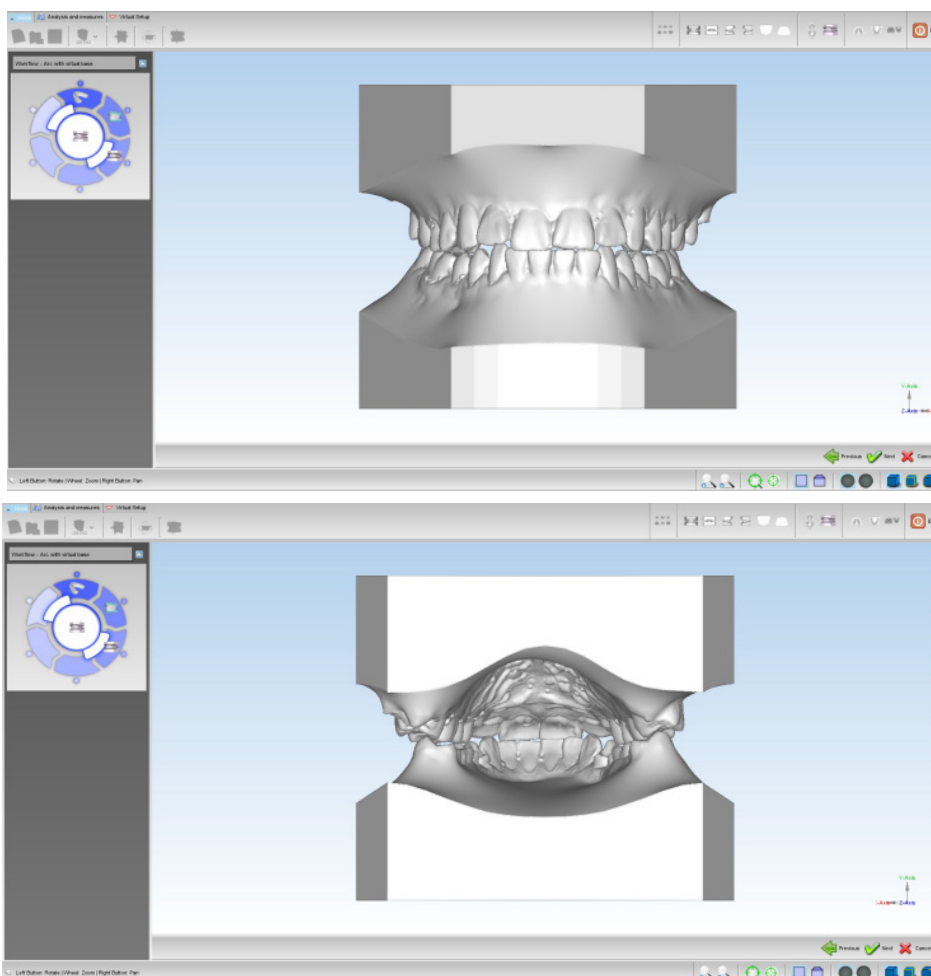
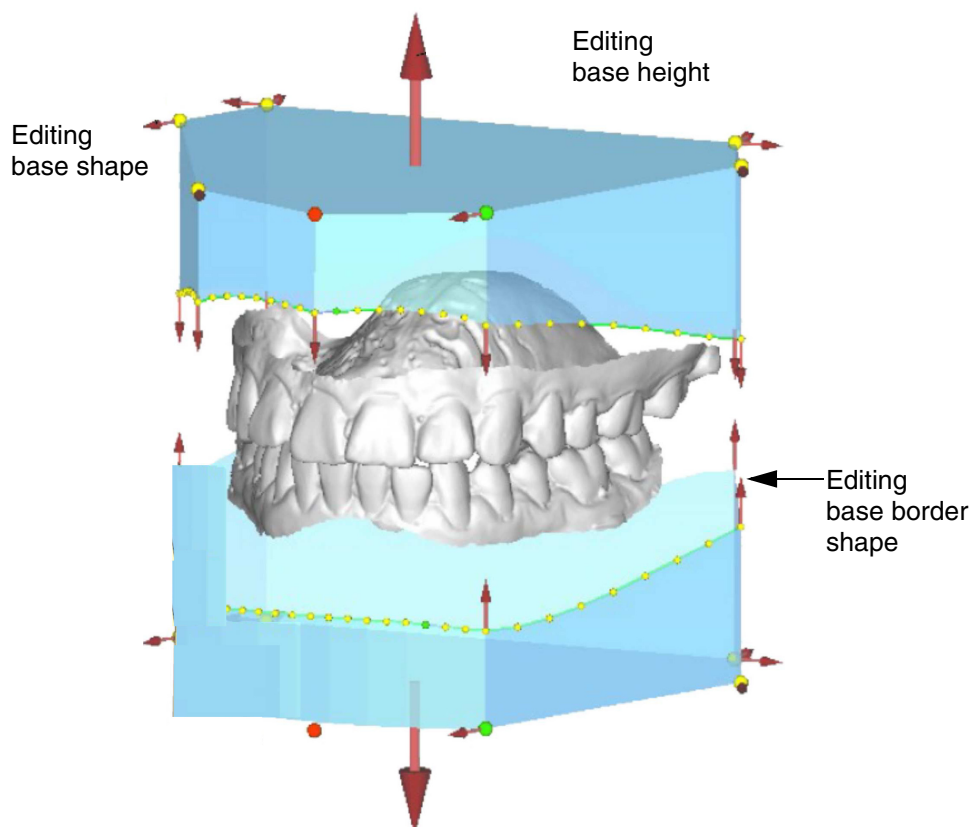
Changing virtual base height

To change the height of virtual bases drag the arrow at the bottom of the base. This option is disabled for ABO bases.

To edit both bases simultaneously check the *Symmetrical changes* check box.

When finished click the **Next** icon.

The defined bases will be merged with maxillary and mandibular models.



7.5 Removing extra surface material from the models using cut and close

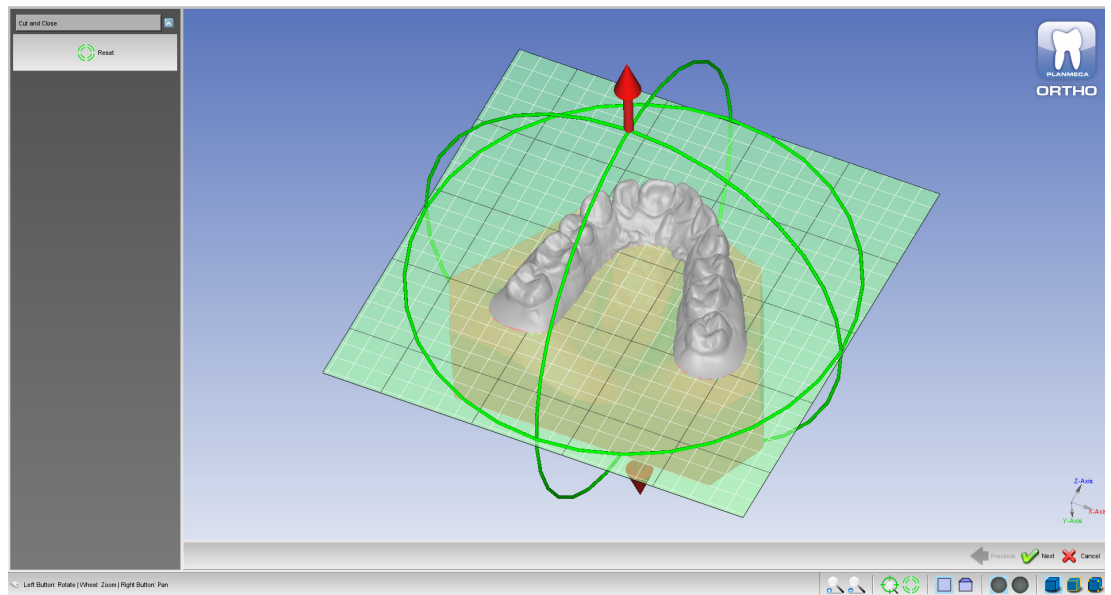
Using the **Cut and close** tool any excess material can be removed from the digital models by indicating a plane under which all the material is cut off. This way the material can be saved when printing the models with a 3D printer.

1. Select the arch using the **Show Maxillary** or **Show Mandibular** icon.



2. Click the **Cut and Close** icon.

3. Rotate the plane with the green circles and rotate the plane with the red arrows.



4. To cut off all material below the indicated plane from all virtual models click the **Next** icon.

8 DENTAL MODEL ANALYSIS

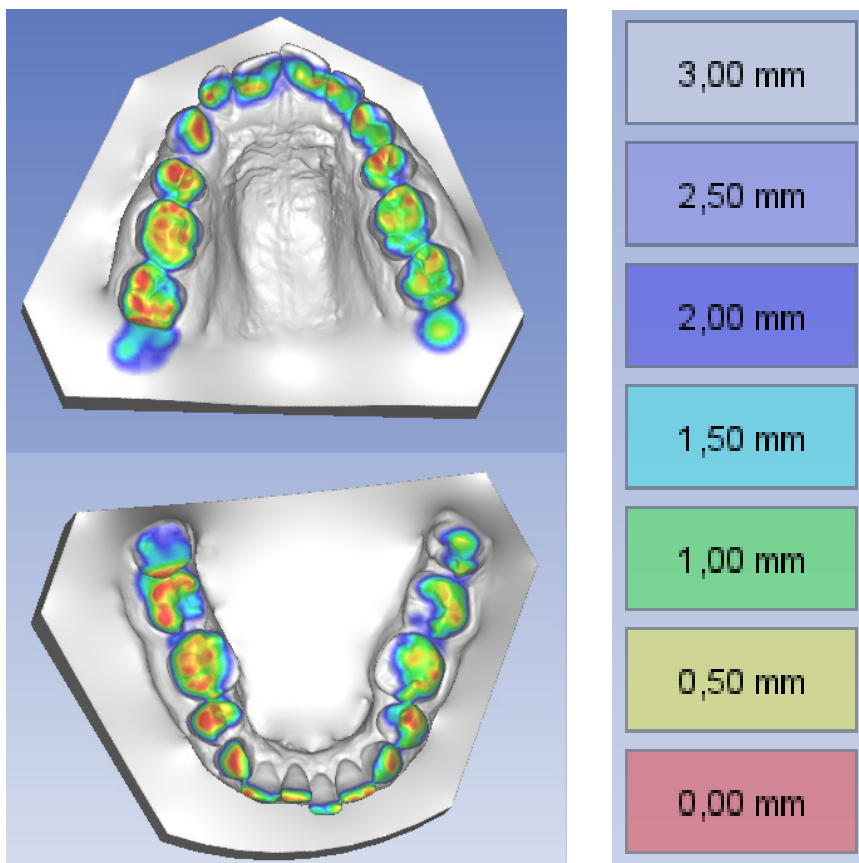
8.1 Occlusion visualization

This tool can be used to view and analyse the occlusion distance (in millimetres) between maxillary and mandibular arches.



1. Click the **Occlusion visualization** icon.

The colours on the arch represent the occlusion distance between the teeth on maxillary and mandibular arch.



2. To view the occlusion distance at the exact point on the arch double-click at the point where you would like to view the distance.
3. The colour scale is displayed at the right side of the screen.

NOTE The distance can be shown only on the colored areas.



The occlusion distance is visualized on both models.

To show the occlusion distance on both arches with mouth open click the **Open mouth** icon.

To show the occlusion distance only on the maxillary arch click the **Show Maxillary** icon.

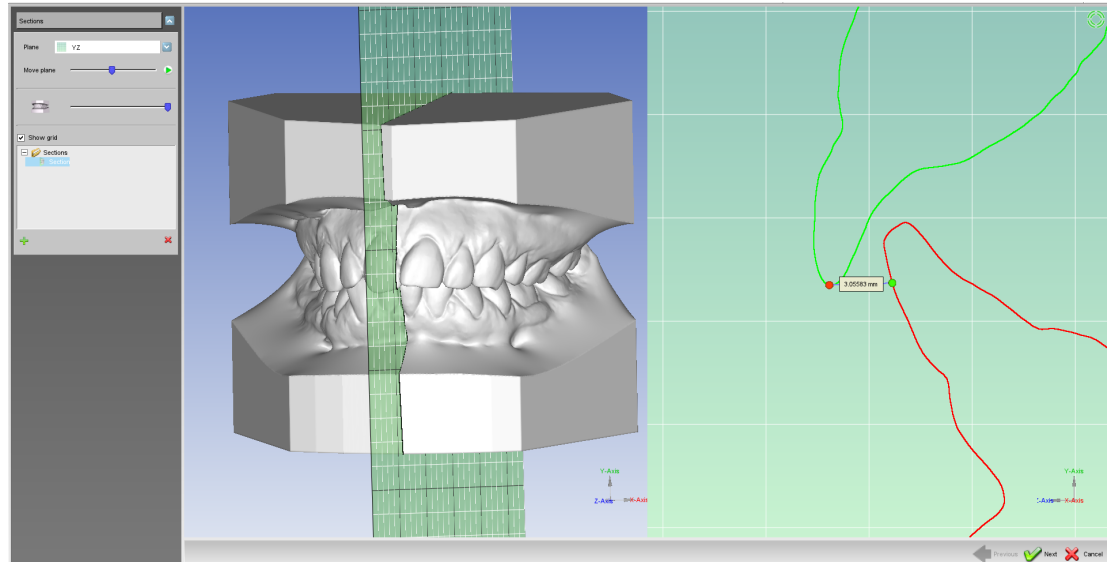
To show the occlusion distance only on the mandibular click the **Show Mandibular** icon.

8.2 Cross section analysis

In the cross section analysis 2D measurements can be done on cross sectional plane aligned to one of the main axis. The cross sectional plane can be slid through the model.



1. Click the **Cross Sections** icon.
2. To change the plane and the transparency of the model use the Move plane and Dental model icon slides.



To add a point into a 2D grid double-click it with the left mouse button.

To pan the cross sectional grid, right-click and drag it.

To zoom in and out scroll the mouse wheel.



To save a measurement view click the plus icon on the left side of the screen after making the measurement, and click the **Next** icon.

8.3 Teeth measurements



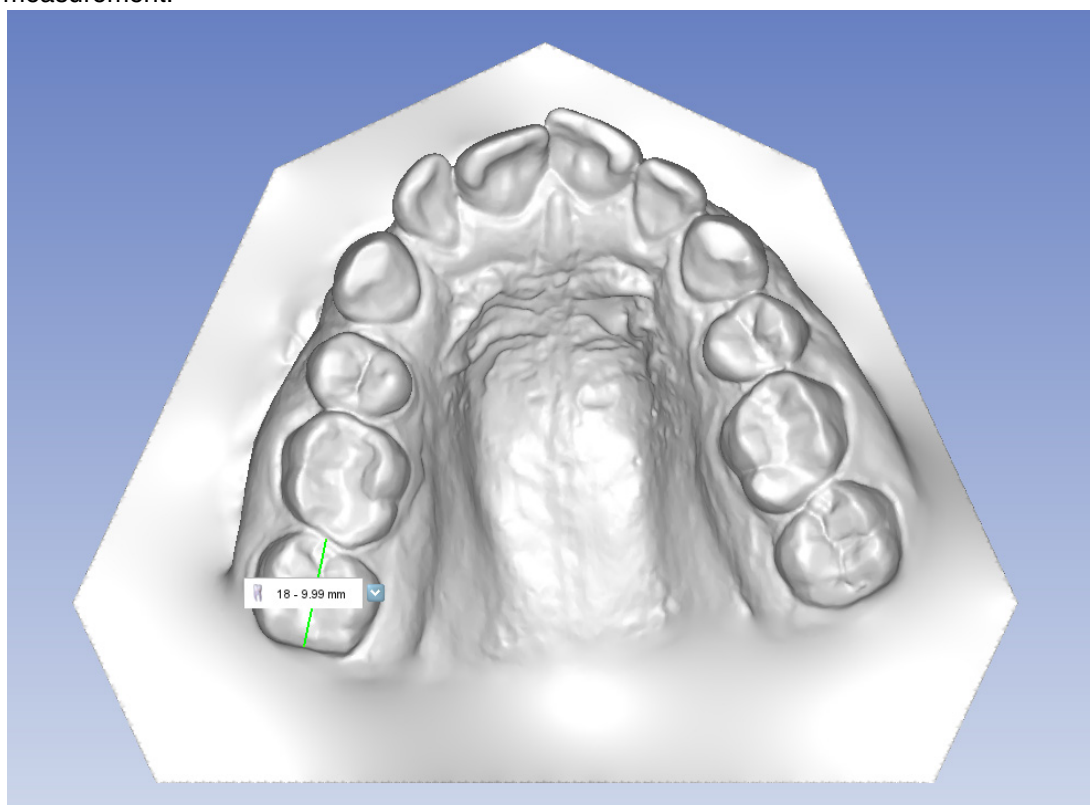
1. Select the arch you want to measure by clicking the **Show Maxillary** or **Show Mandibular** icon.



2. Click **this** icon.

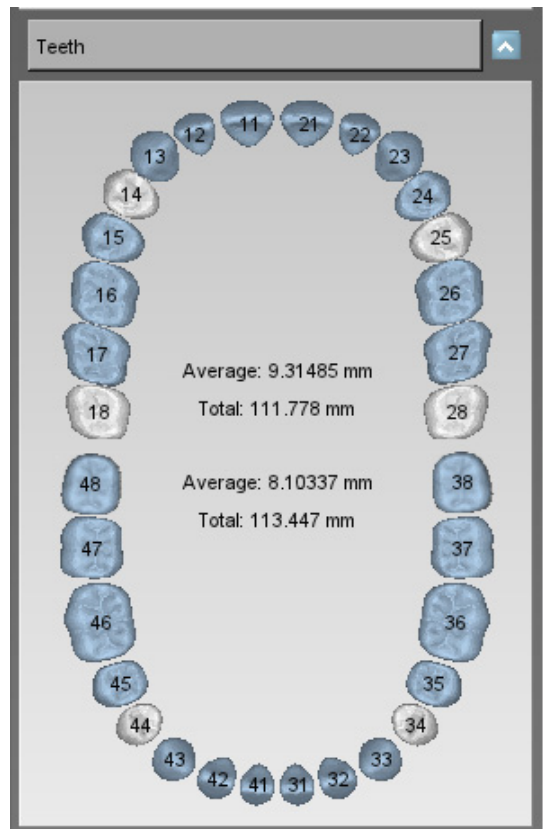
To start making the measurements tooth by tooth:

3. Starting from the most posterior tooth on the left side of the dental arch double-click on the distal and mesial points of each tooth with the left mouse button.
4. If necessary correct the tooth number via the drop-down menu next to the tooth measurement.



For each tooth width measurement the current length is shown. To adjust length drag either of the two points with the left mouse button.

The total and average length of the segments are shown in the dental map on the left side of the screen.



When all tooth measurements of the upper and lower arches are done, Bolton overall and anterior ratio are shown in the upper part of the screen.



Use these icons to **Undo** / **Redo** tasks.



To clear the measurement click the **Reset** icon.



To save the measurement click the **Next** icon and then the **Save case** icon.

8.4 Measuring arch length

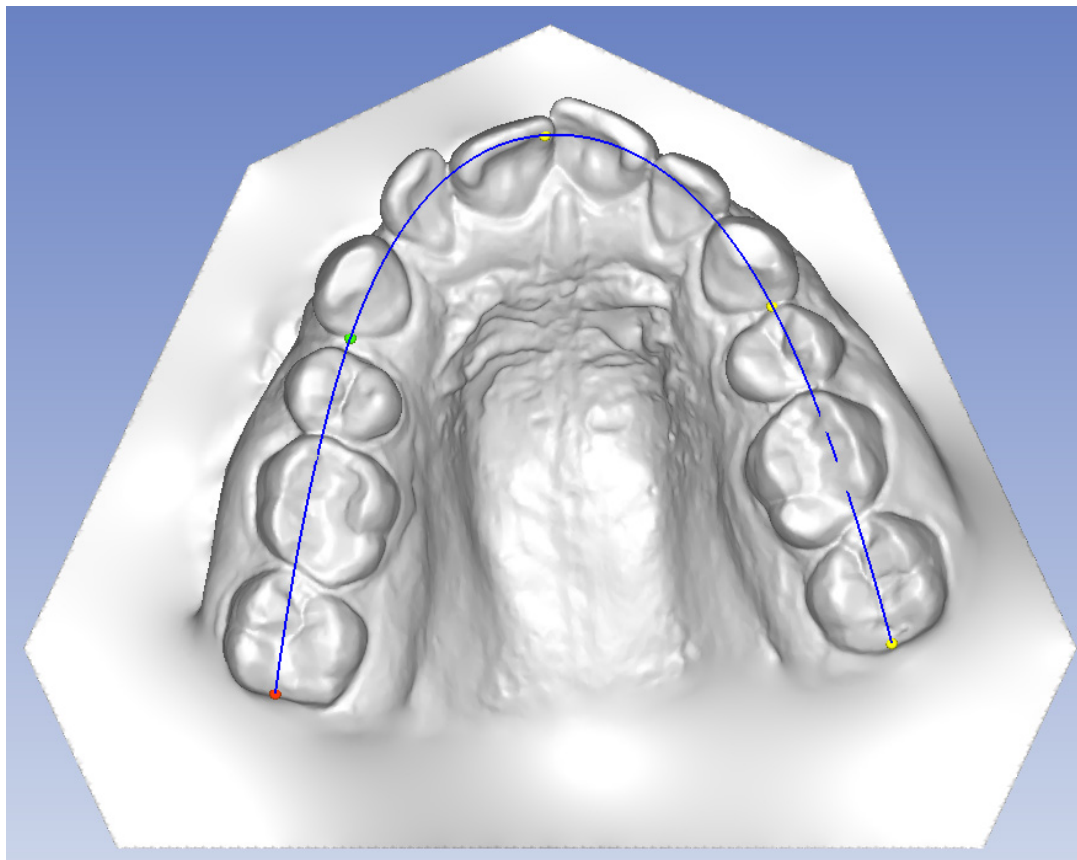


1. Select the arch to measure by clicking the **Show Maxillary** or Show **Mandibular** icon.



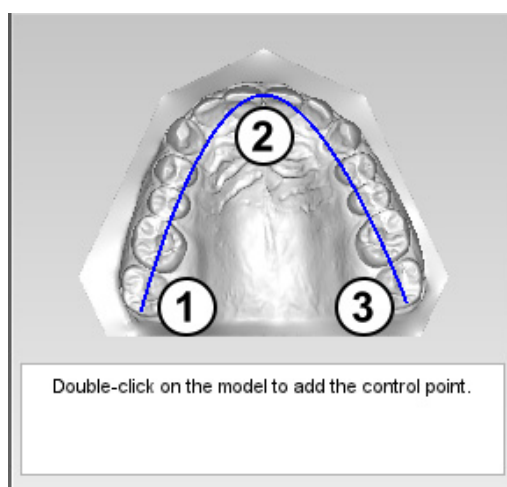
2. Click the **Measure arch** icon.

3. Mark three points on the arch by clicking with the left mouse button.



NOTE Mark first point on the side, the second one in front and the third one on the other side.

NOTE If necessary more than 3 points can be added by double-clicking on the blue line with the left mouse button.



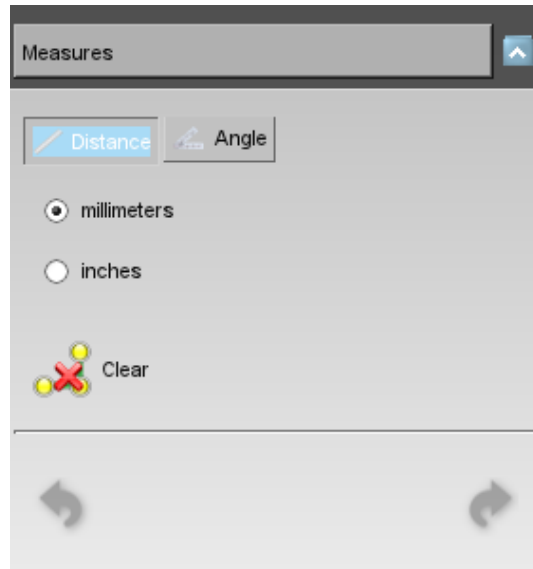
8.5 Free measurements



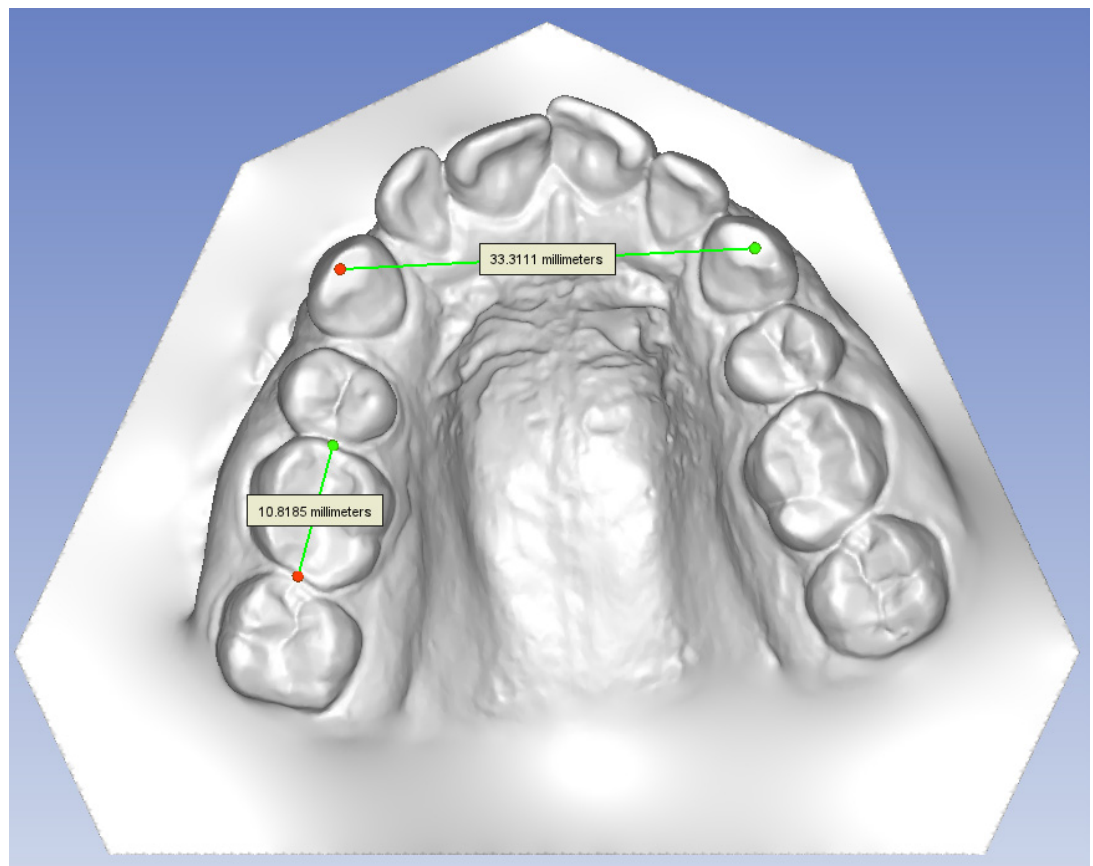
To freely measure lengths or angles on the models:



1. Click on the **Free measurement** icon.
2. Select the arch to measure by clicking the **Show Maxillary** or **Show Mandibular** icon.
3. Select **Distance** or **Angle** measurements and the appropriate measuring unit.



4. Mark a point on the arch by double-clicking with the left mouse button.



9 TREATMENT PLANNING IN 3D VIRTUAL SETUP

The virtual setup can be used for making a staged treatment plan e.g. by displacing, rotating and extracting teeth. The plan can then be utilized in the models builder for creating a series of STL models of the treatment plan.

9.1 Tooth segmentation

The tooth segmentation consist of defining outlines for single teeth, combining teeth outlines and defining local origo for all teeth.

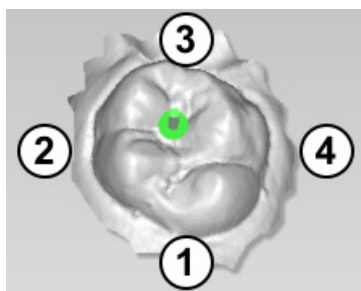


1. Select the arch to use for segmentation by clicking the **Show Maxillary** or **Show Mandibular** icon.

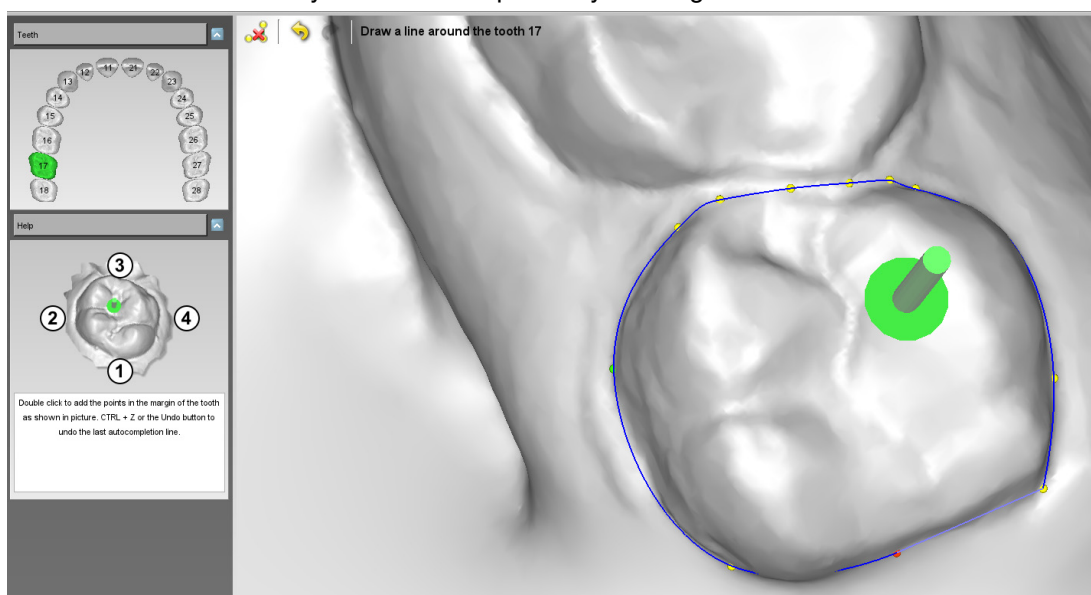
NOTE Tooth measurements have to be done before the segmentation of the teeth.



2. Click the **Tooth Segmentation** icon.
3. To mark the outlines of the tooth double-click with the left mouse button on all four directions (distal, buccal, mesial, lingual).



The software automatically combines the points by drawing a line between them.



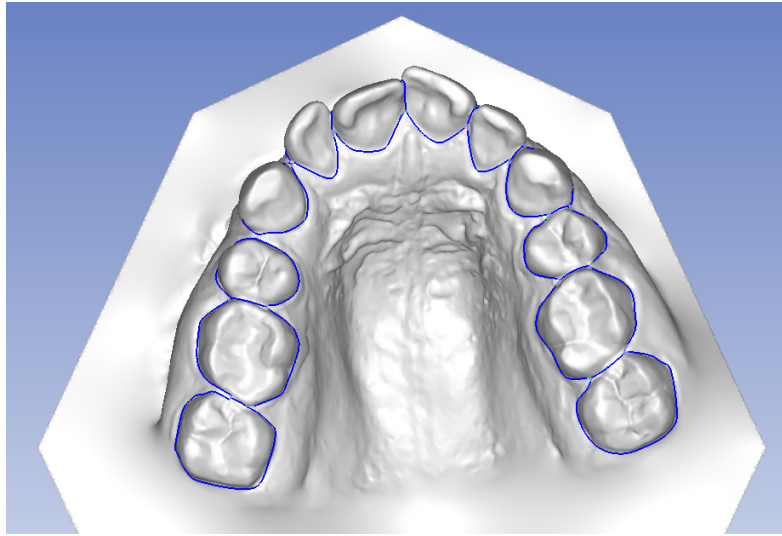
To fine-tune tooth margin line:

- move a point on the outline by dragging it using the left mouse button
- remove a point from the outline by double-clicking on it with the left mouse button
- add a point between two points on the outline by double-clicking on the outline
- add a new point by clicking the **Undo** button and clicking on another spot in the outline area.



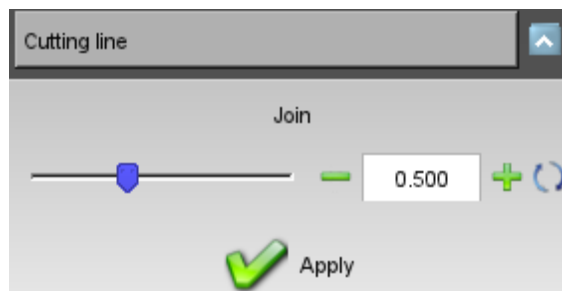
4. To define the outlines for all teeth repeat the procedure from step 3 on page 30.

5. When you have defined the outlines for all teeth verify that the teeth are correctly outlined.



To readjust the outlines you can:

- add a new point between two consecutive points by double-clicking near the edge of the two points.
- remove a point by double-clicking on it
- move a point by clicking and dragging it using the left mouse button.
- define the maximum distance between the outlines of adjacent tooth to be combined using the **Join** slider.



If you need to re-define the outlines return to step 3 on page 30.

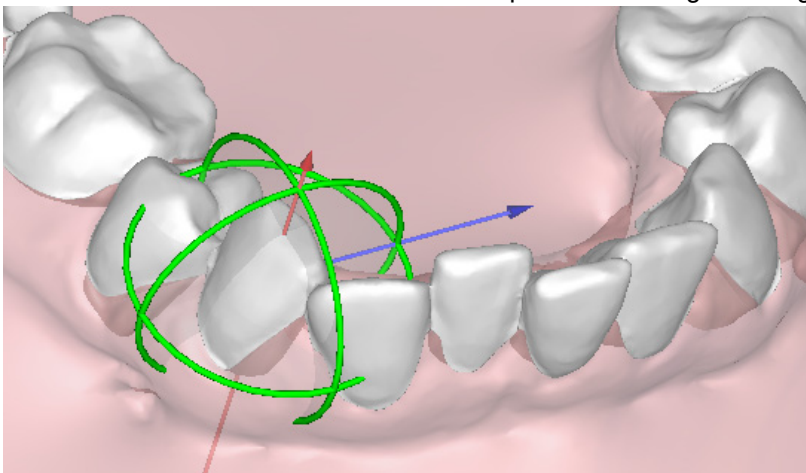


6. To continue to definition of local origo click **Next**.

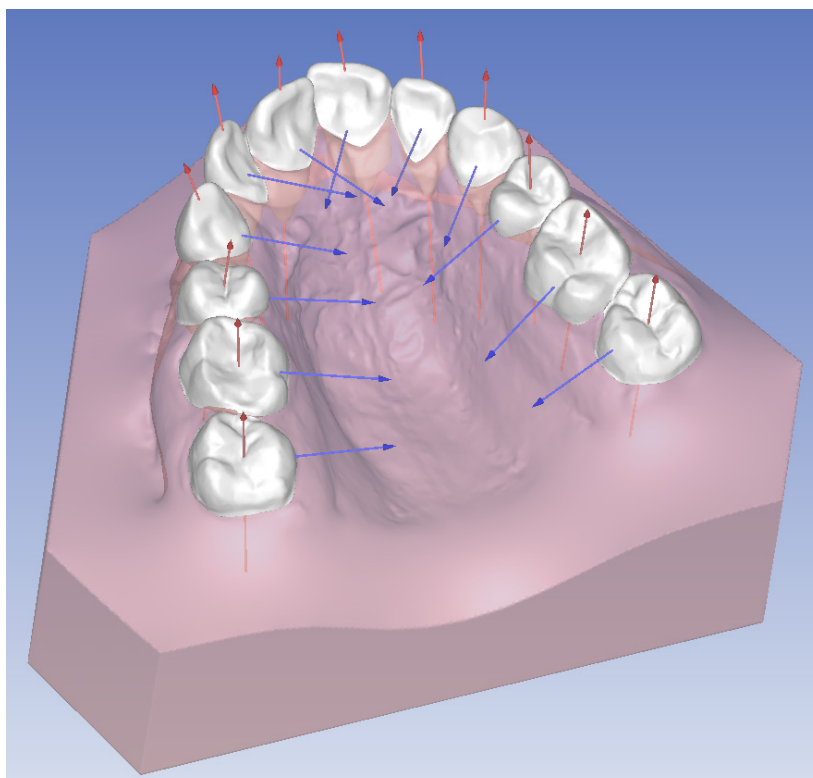
NOTE Before proceeding complete the cutting line procedure.



7. From the *Tooth segmentation* menu select **Change local origo**.
8. Double-click on the tooth and use the manipulator to change the origo if necessary.



The tooth axis orientations should be based on the tooth root directions.



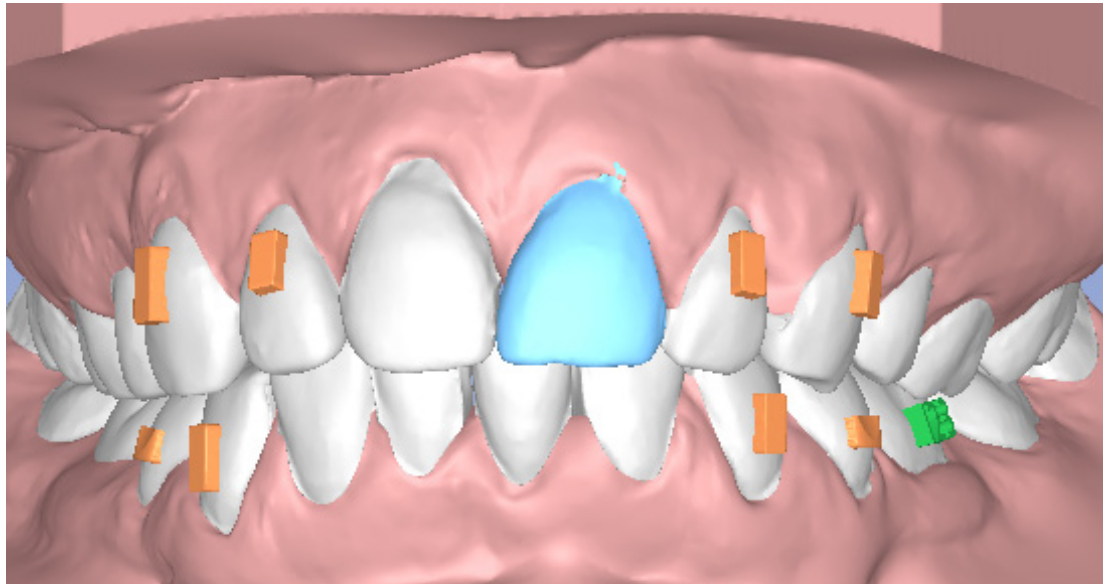
NOTE When changing the local origo, the virtual root of the tooth changes direction.

To change the root dimension select the tooth and use the left toolbox.

9.2 Virtual setup



1. Click the **Virtual Setup** icon.
2. Select a tooth by clicking it with the left mouse button.



9.2.1 Displacement of teeth

Translating tooth

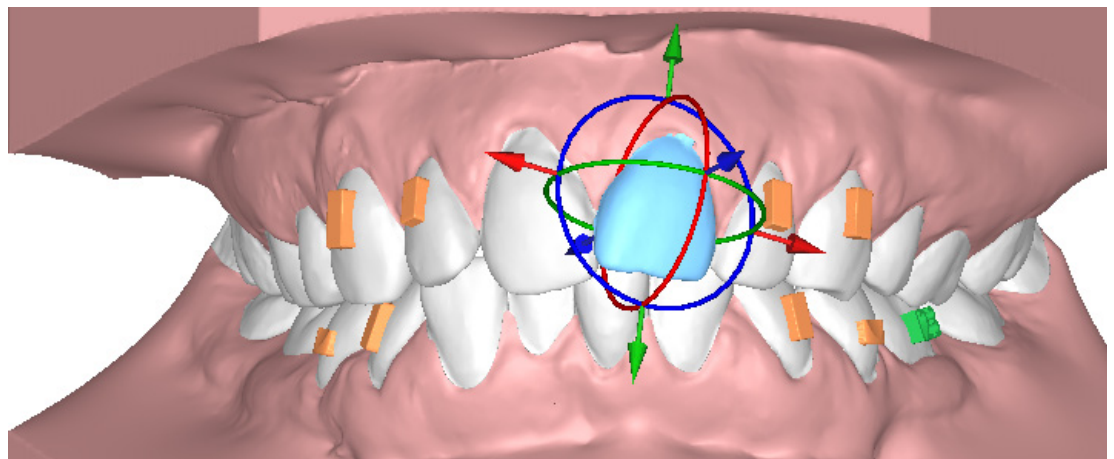
1. Click the tooth with the left mouse button.
2. Press and hold down the **Shift** key while dragging the teeth with the left mouse button.

Rotating tooth

Press and hold down the **Ctrl** key while dragging the tooth with the left mouse button.



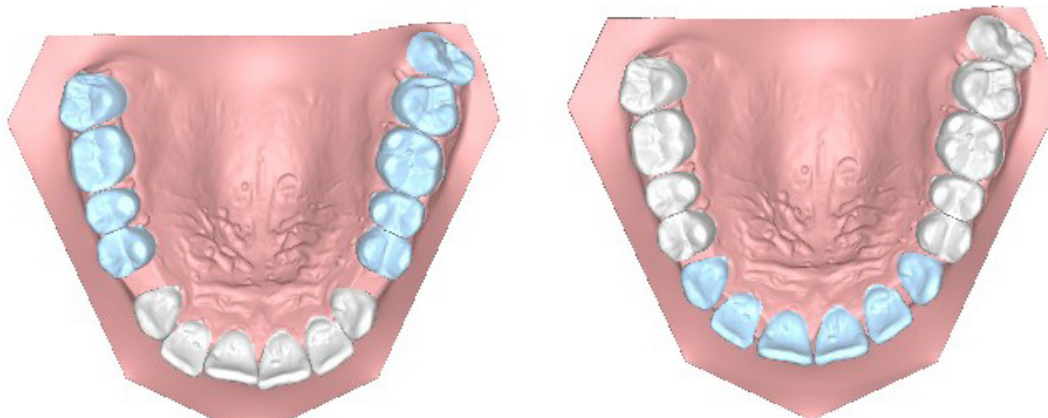
If a tooth is selected a **Tooth manipulator** can be activated to control the movements of the tooth.



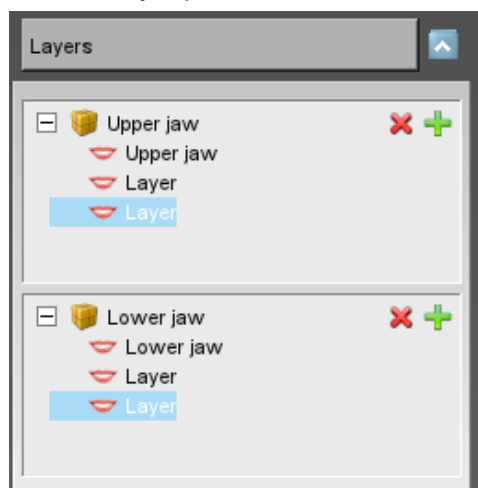
9.2.2 Adding layers

Layers can be created for simulation of different stages of treatment.

For example if the posterior teeth need to be moved first you can build *Layer 1*. For moving the rest of the teeth (anterior) *Layer 2* can be created.



To add a layer press the + button in the layers group.



To delete a layer press the X button.

The starting point for a new layer is the last existing layer, which is the only layer that can be edited.

9.2.3 Main toolbox



New virtual setup

The existing virtual setup will be cleared.



Open existing virtual setup

Virtual setup project can be imported to the current patient in *.vsProj* format.

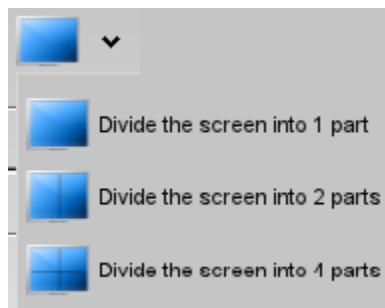


Export virtual setup

The virtual setup project can be exported in *.vsProj* format.



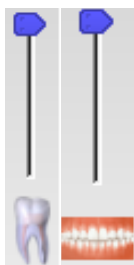
Divide the screen



Show/hide tooth manipulator



Animation

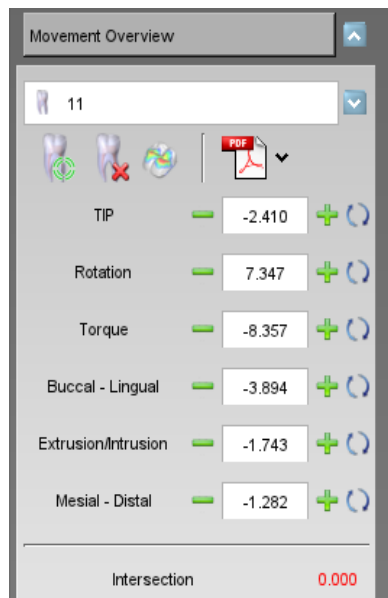


Adjust teeth/gum transparency

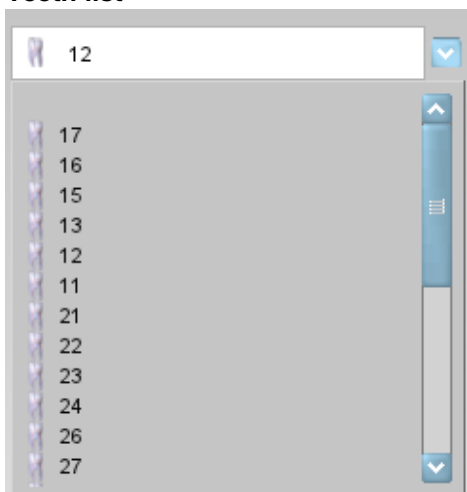
9.2.4 Fine-adjusting a single tooth

In the *Movement overview* menu you can select and fine-adjust a single tooth.

TIP, rotation and torque can be adjusted in degrees and the buccal - lingual, extrusion - intrusion and mesial - distal translations in millimetres.



Teeth list



Reset tooth position

Reset the position of the selected tooth.



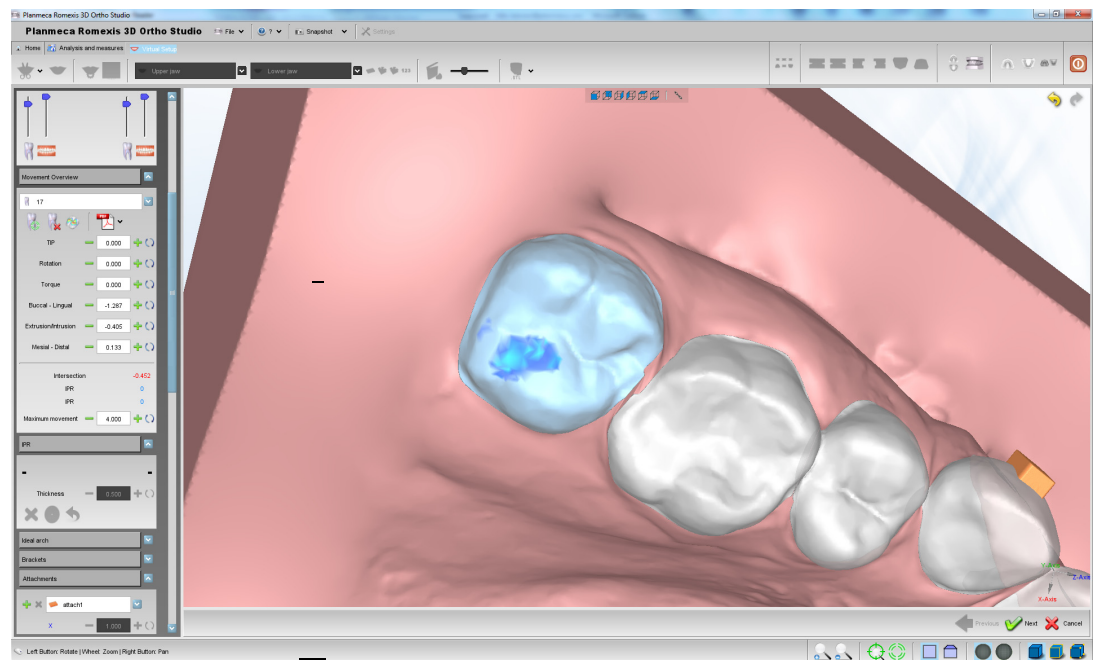
Extract tooth

Extract and restore the selected tooth.



Intersection

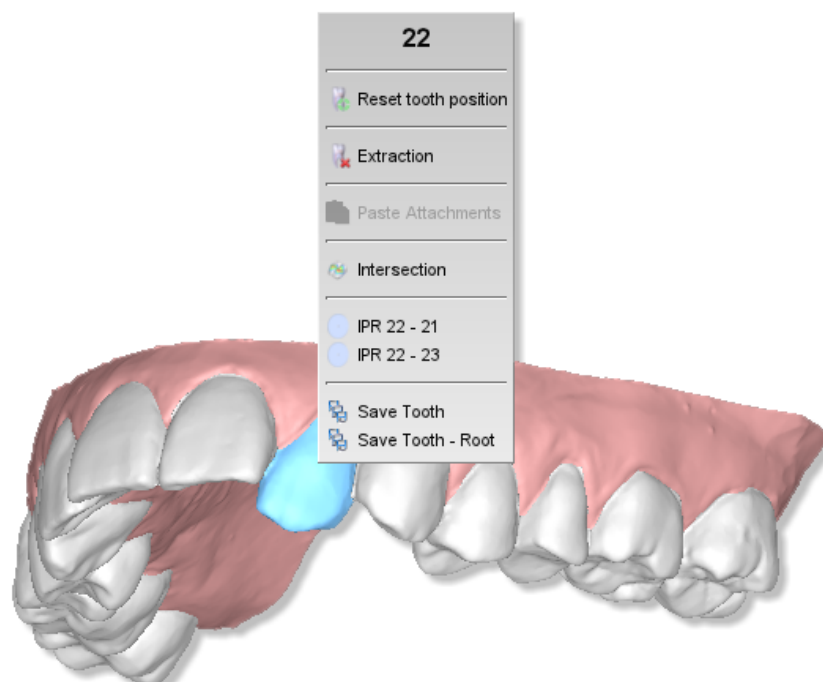
Visualize the intersection of the selected tooth in different directions



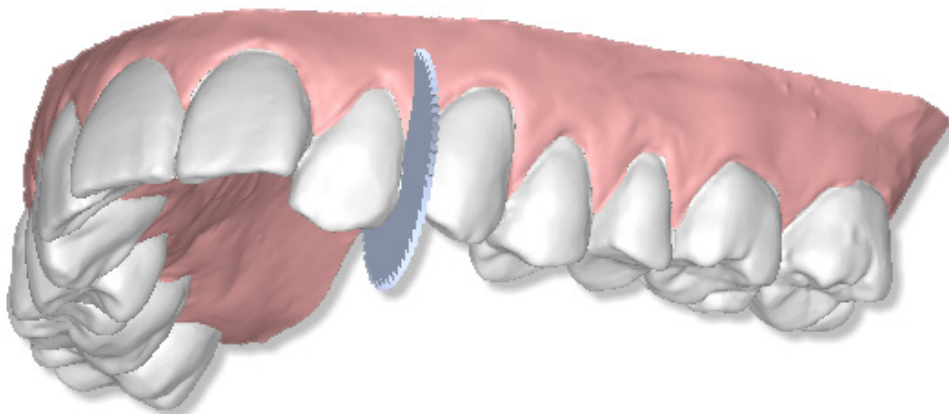
9.2.5 Inter-proximal reduction - IPR

Inter-proximal reduction is the mechanical removal of some of the outer tooth surface, called enamel, between adjacent teeth. The space created by inter-dental reduction can then be used to straighten the teeth.

1. To active the IPR click the tooth with the right mouse button.
2. Select the neighbouring teeth for IPR.



A blade appears in between the selected teeth.

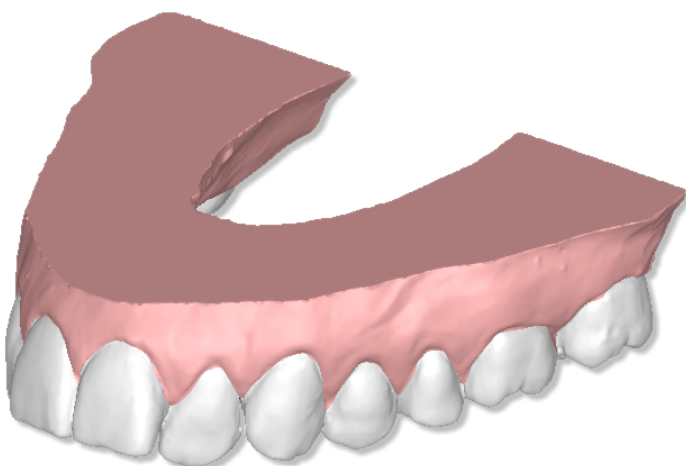


3. Define the thickness for the IPR and click the **IPR** icon.

You can also undo or cancel the IPR using the **X** or back arrow buttons.

IPR must be applied at the beginning of each layer before any tooth has been moved.

The IPR cutting plane is automatically calculated. By choosing 1 mm of IPR between two teeth, e.g. between the teeth 22-23, 0.5 mm is applied to the tooth 22 and 0.5 mm to the tooth 23.



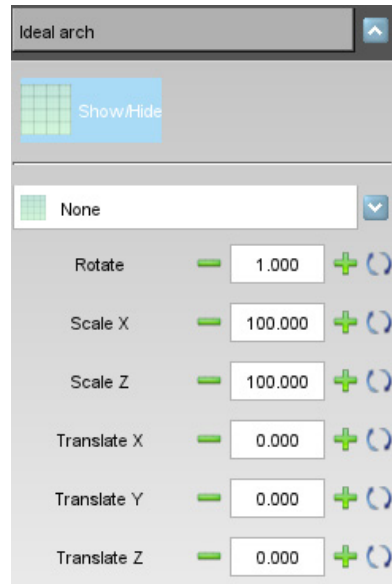
9.2.6 Ideal arch

The ideal arch can be used as a visual guide to move the teeth. The arch can be rotated, scaled and translated to find the correct position.

An example of an ideal arch is show below.

Show/hide
ideal arch

List of
available
arches



Adding a new arch

Add new images as 32 bit png file with alpha channel (to use transparency) into the following folder:

C:\Program Files\Planmeca\Romexis\client\orthostudio\idealarch

9.2.7 Adding attachments

Add a new attachment by pressing and holding down the **Shift** key and double-clicking the tooth.

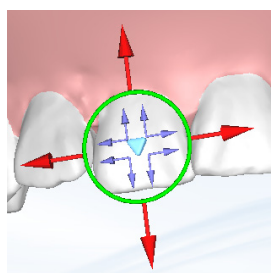


List of available attachments

Add new attachment (+)

Remove selected attachment (-)

Attachment thickness



Attachment with manipulator

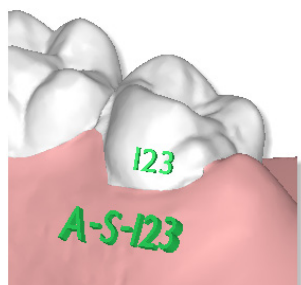
9.2.8 Adding label

To identify each model, e.g. in case a series of models is created, a numbered text label can be attached to the model.

To add a new label press and hold down the **Shift** key and double-click over gum or teeth.



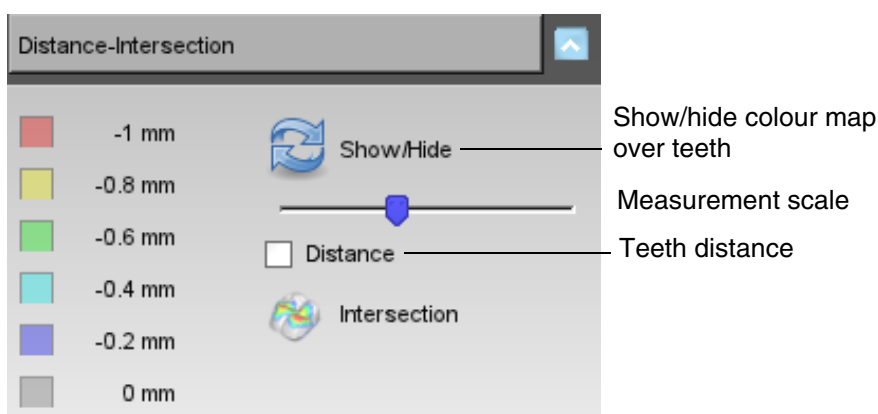
The written 123 will be replaced with the correct numbering after building of virtual models.

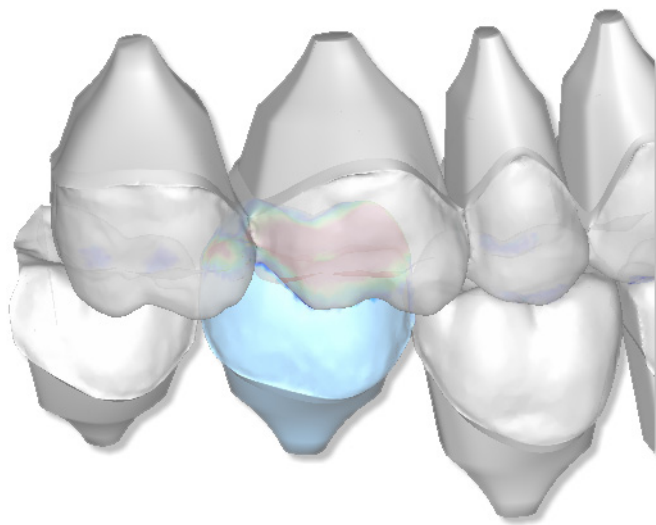
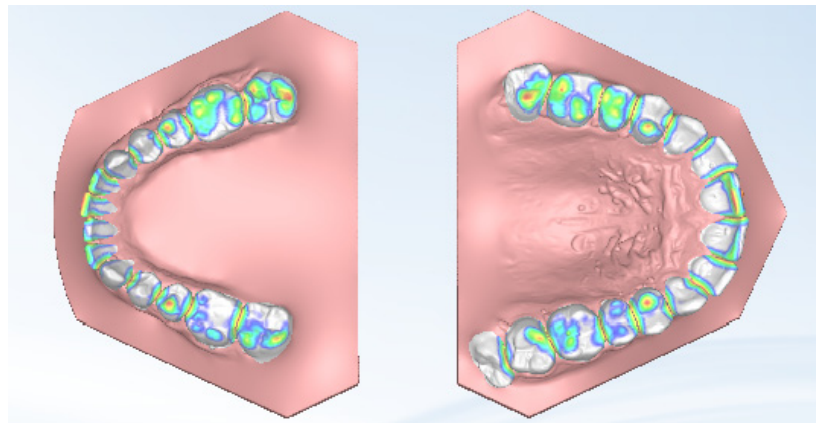


9.2.9 Visualizing intersection/distance

When making a change to virtual setup recalculate the intersections every time.

To recalculate the intersections for a single tooth right-click a given tooth and click the **Intersection** icon.





9.3 Creating a series of digital dental models using models builder

The models builder is intended to be used for creating a series of models which can be printed e.g. using a 3D printer. The 3D printed models can then be further utilized to create custom orthodontic appliances. The number of models and the maximum tooth translation between each model can be freely defined.

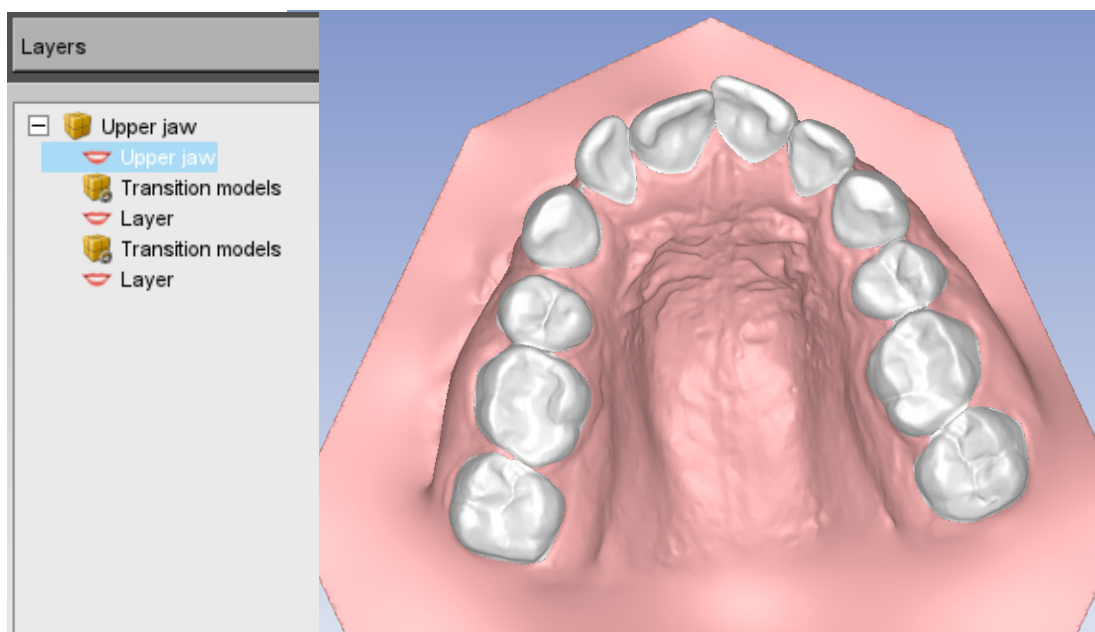
1. Select the arch by clicking the **Show Maxillary** icon or **Show Mandibular** icon.



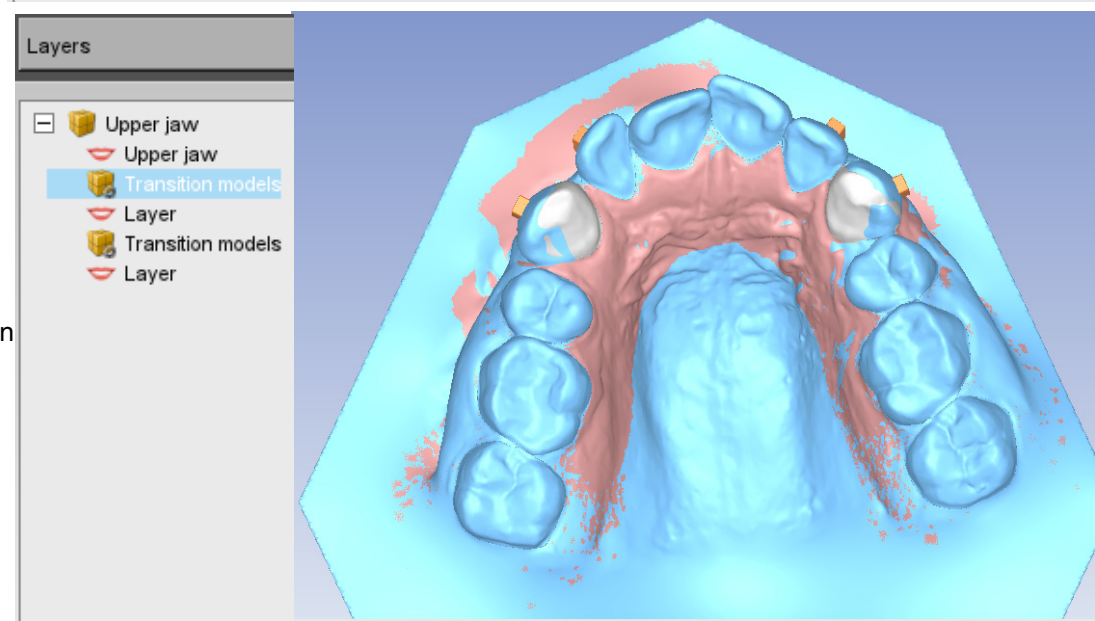
2. Click the **Models builder** icon.

The *Layers* menu shows the different layers and the transition models between each layer.

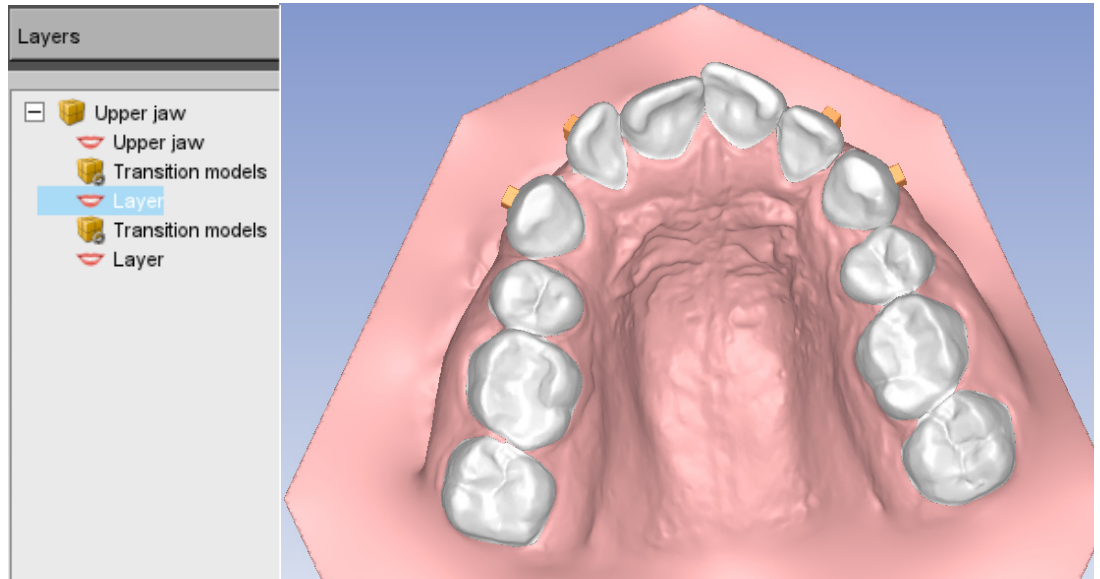
Current situation



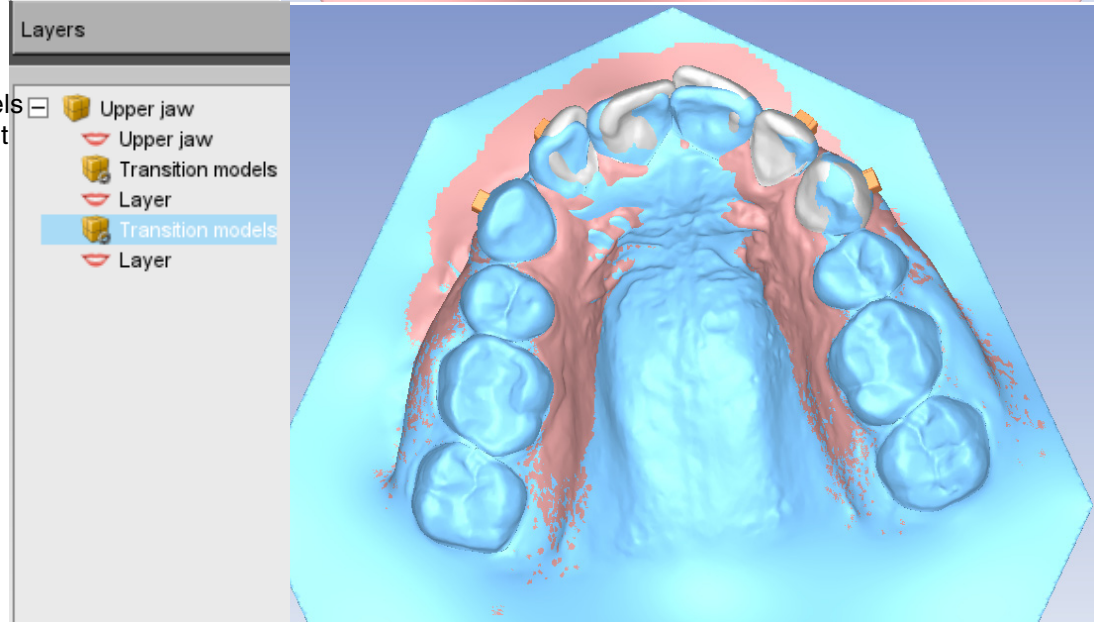
Transition models between the current situation and the first layer



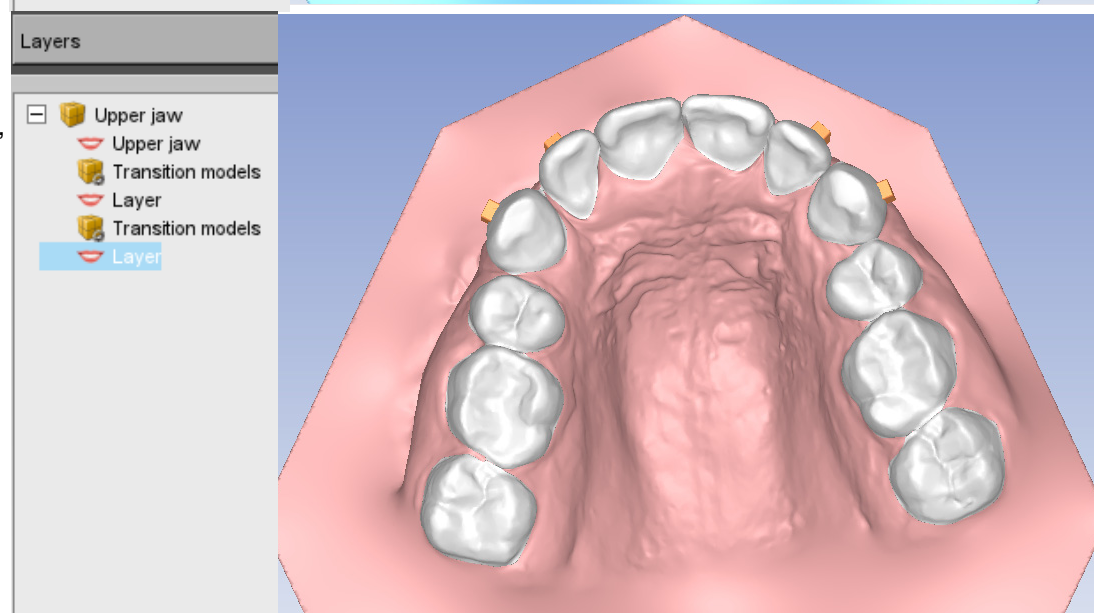
Layer (1)



Transition models between the first layer and the final layer



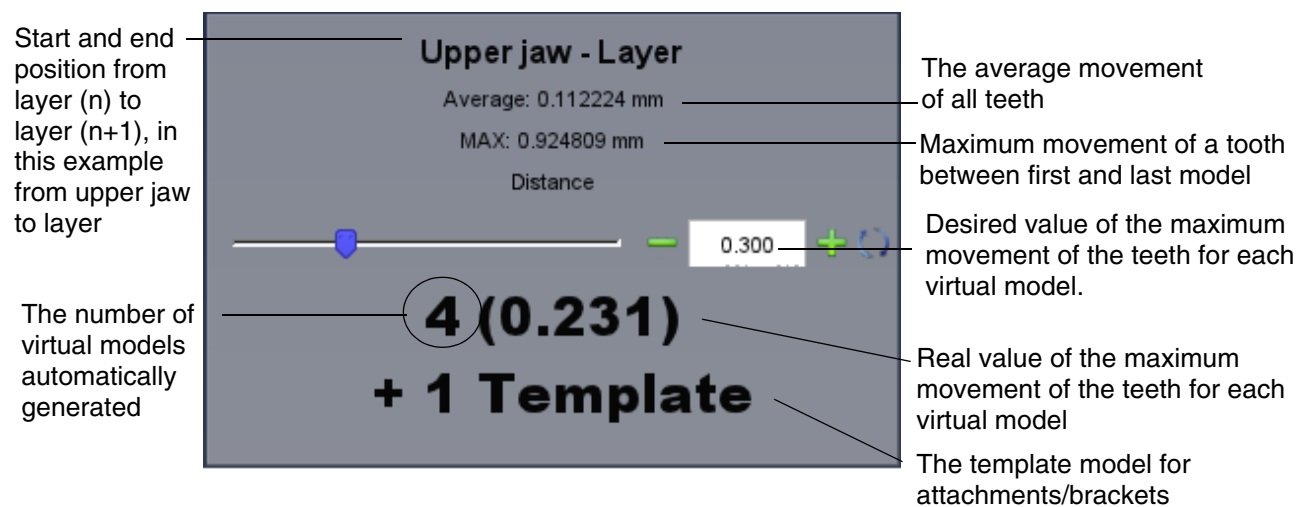
The last layer of the treatment, i.e. the final positions of the teeth



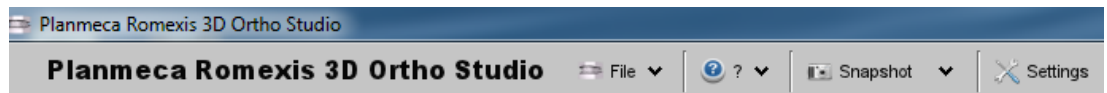
TREATMENT PLANNING IN 3D VIRTUAL SETUP

3. To choose the maximum movement of the teeth for each of the transition models, select the transition models and use the slider or controls.

In the following window the models builder information is shown in detail.



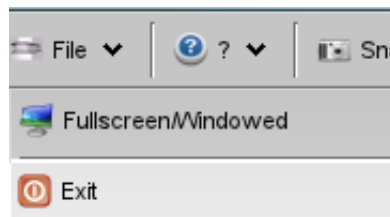
10 GENERAL MENUS



10.1 File menu

In the *File* menu you can:

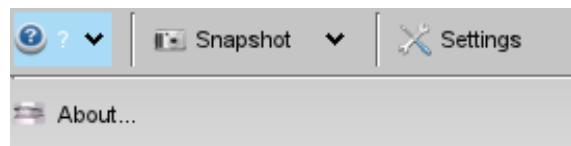
- Select the view mode: Fullscreen/Windowed
- Exit the application



10.2 Help menu

In the *Help* menu you can:

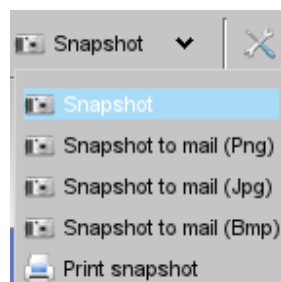
- View the software version of the Planmeca Romexis 3D Ortho Studio by selecting **About**.



10.3 Snapshot menu

In the *Snapshot* menu you can:

- Take a snapshot of the current screen
- Take and send a snapshot by e-mail in png, jpg or bmp formats
- Print snapshot



10.4 Settings menu

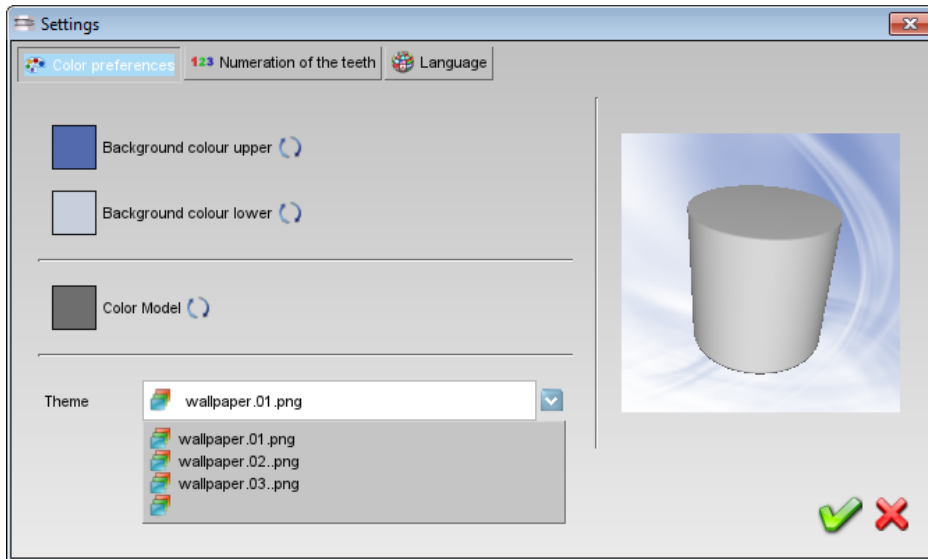


To access the user interface settings click the **Settings** in the *Home* window.

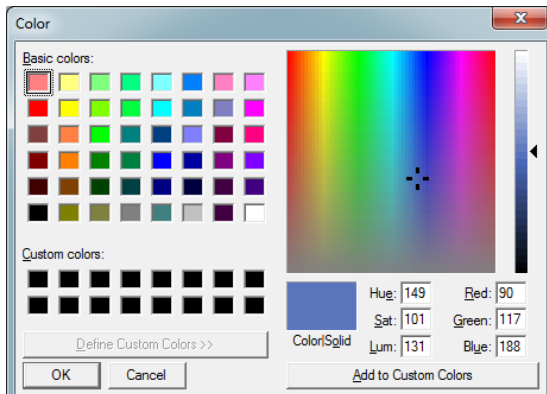
10.4.1 Colour references

In the *Settings* window you can select the background colour for the upper and lower viewing area as well as for the dental model.

Click the square next to the background or the model you would like to modify.



Select the desired colour by clicking in the *Basic colours* field or in the colour window.



To define a new custom colour with exact shade enter the values for hue, saturation, luminescence, as well as for red, green and blue shades in the respective fields.

Click the **Add to custom colours** button.

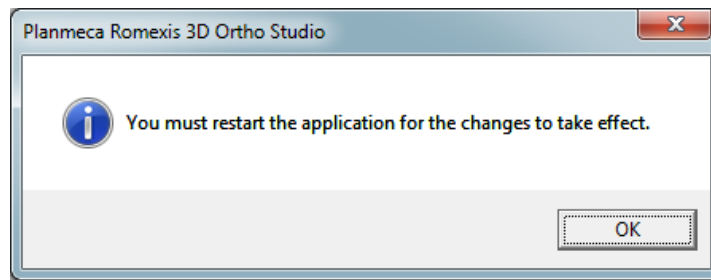
The colour now shows in *Custom colours*.

Click **OK**.



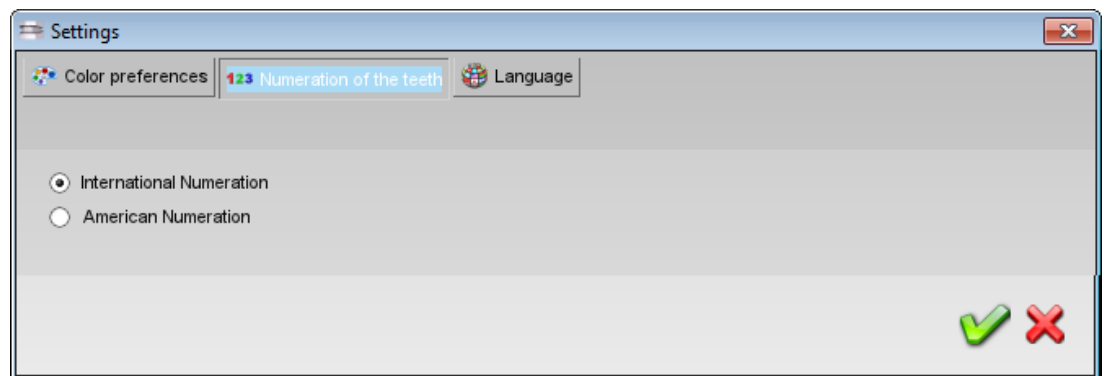
When finished click this button.

For the changes to take effect click **OK** and restart Planmeca Romexis 3D Ortho studio.



10.4.2 Numeration of teeth

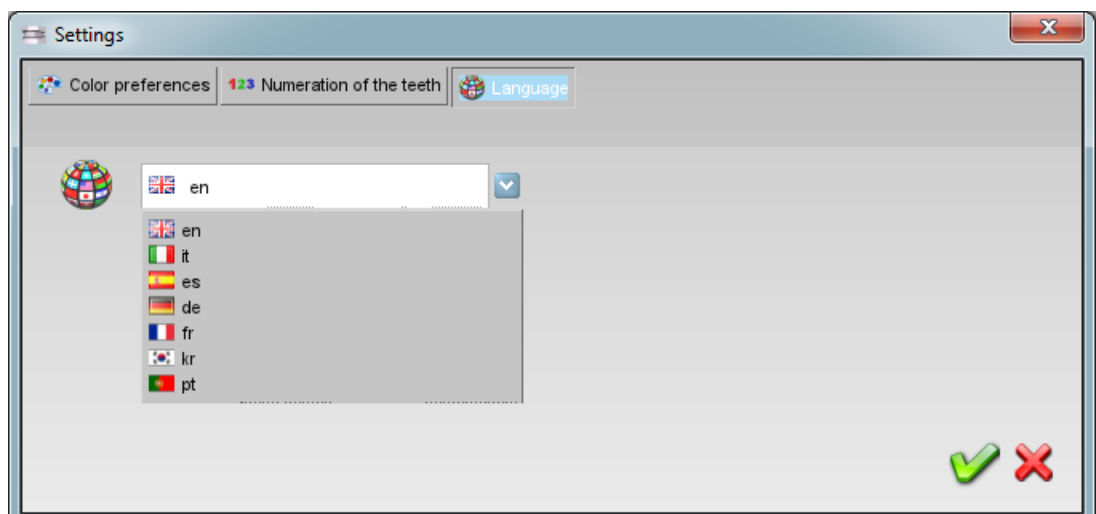
1. Select the teeth numeration system by checking the appropriate checkbox.



2. Click this icon.

10.4.3 Language

1. Select the language of the user interface from the drop-down menu.



2. Click this icon.

APPENDIX: PLANMECA ROMEXIS 3D ORTHO STUDIO VIEWER

The Planmeca Romexis 3D Ortho Studio Viewer can be distributed freely with ortho cases created in Planmeca Romexis 3D Ortho Studio.

The Viewer can be used to open .ortho cases created with the full version of the software for making dental model analyses and visualization of the virtual setup treatment stages using the models builder. Storing of measurements or modifications performed in the virtual setup treatment plan is not possible.

The Viewer is located in the zip archive:

/ProgramFiles/Planmeca/Romexis/viewer/Planmeca_Romexis_3D_Ortho_Studio_Viewer.zip

The Viewer requires a free workstation dedicated license, which is prompted at first start-up.

PLANMECA

Planmeca Oy | Asentajankatu 6 | 00880 Helsinki | Finland

tel. +358 20 7795 500 | fax +358 20 7795 555 | sales@planmeca.com | www.planmeca.com

